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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 72. A-10A AIR--ETC(U)
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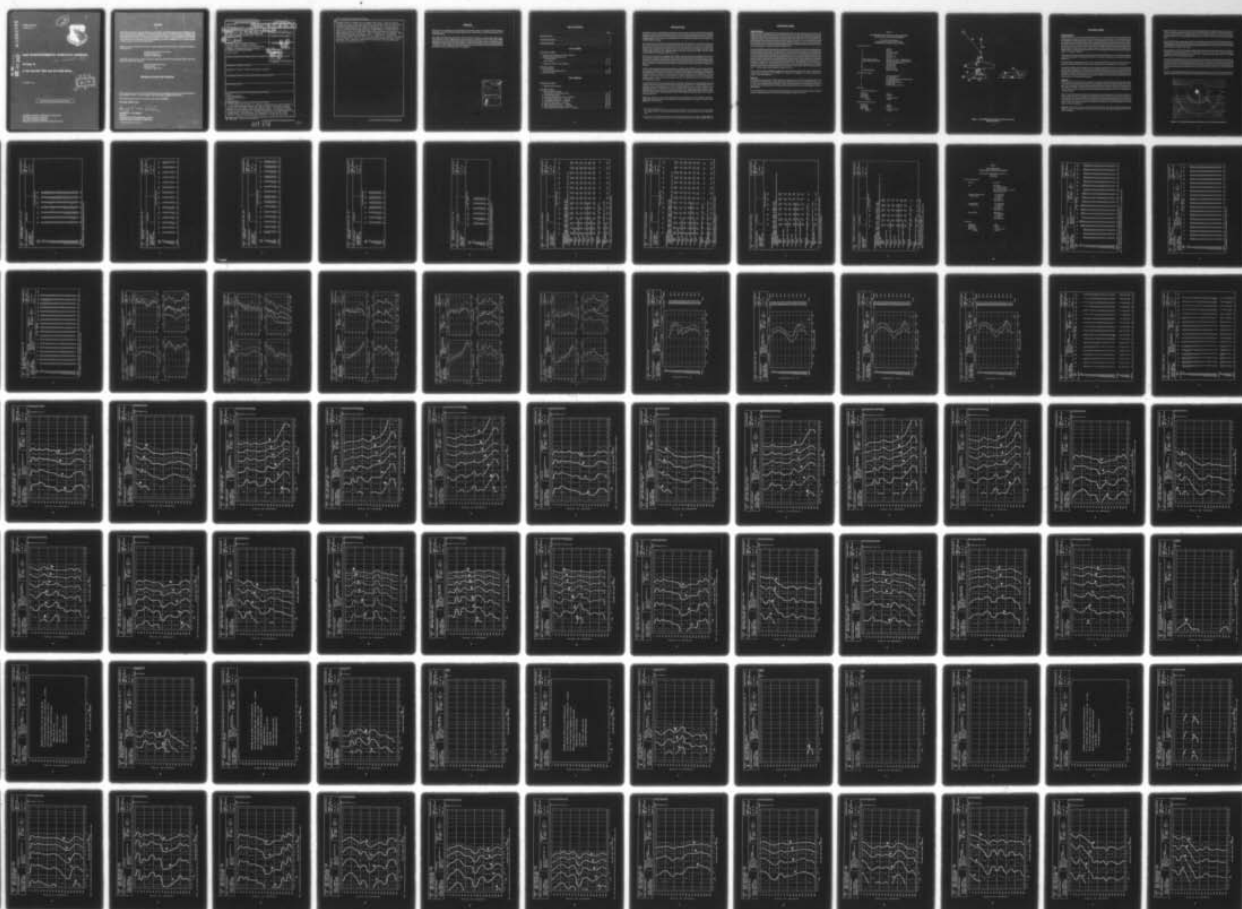
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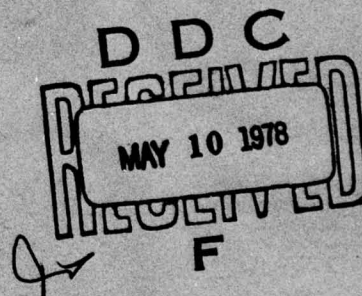
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK

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Volume 72

A-10A Aircraft, Near and Far-Field Noise

JANUARY 1977



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AEROSPACE MEDICAL RESEARCH LABORATORY
AEROSPACE MEDICAL DIVISION
AIR FORCE SYSTEMS COMMAND
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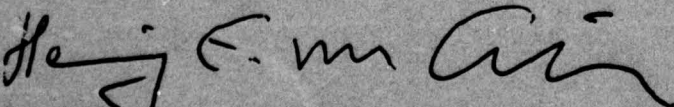
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This technical report has been reviewed and is approved for publication.

FOR THE COMMANDER



HENNING E. VON GIERKE
Director

Biodynamics and Bioengineering Division
Aerospace Medical Research Laboratory

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM	
1. REPORT NUMBER AMRL-TR-75-50, Vol 72		2. REPORT NUMBER AMRL-TR-75-50-VOL-72	
3. TITLE (and Subtitle) USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK, Volume 72 A-10A Aircraft, Near and Far-Field Noise.		4. AUTHOR Robert G. Powell	
5. PERFORMING ORGANIZATION NAME AND ADDRESS Aerospace Medical Research Laboratory Aerospace Medical Division, Air Force Systems Command, Wright-Patterson AFB, OH 45433		6. PERFORMING ORG. REPORT NUMBER 72 of a series	
7. CONTROLLING OFFICE NAME AND ADDRESS Same as above		8. CONTRACT OR GRANT NUMBER(s) 62202F 7231-04-33 7231-04-36	
9. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		10. PROGRAM ELEMENT PROJECT, TASK AREA & WORK UNIT NUMBERS Jan 77 125 Unclassified	
11. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited		12. SECURITY CLASS (of this report) Unclassified	
13. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		14. DECLASSIFICATION/DOWNGRADING SCHEDULE	
15. SUPPLEMENTARY NOTES			
16. KEY WORDS (Continue on reverse side if necessary and identify by block number) Noise Noise Environments Bioenvironmental Noise Aircraft A-10A Aircraft			
17. ABSTRACT (Continue on reverse side if necessary and identify by block number) The USAF A-10A aircraft is a close air support/tactical bomber powered by two TF34-GE-100 turbofan engines and with an on-board jet engine (auxiliary powered unit, APU) used to start the turbofan engine. This report provides measured and extrapolated data defining the bioacoustic environments produced by this aircraft operating on a concrete runup pad for five engine/APU power unit configurations. Near-field data are reported for 15 locations in a wide variety of physical and psychoacoustic measures: overall and band sound			

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pressure levels, C-weighted and A-weighted sound levels, preferred speech interference level, perceived noise level, and limiting times for total daily exposure of personnel with and without standard Air Force ear protectors. Far-field data measured at 19 locations are normalized to standard meteorological conditions and extrapolated from 75-8000 meters to derive sets of equal-value contours for these same seven acoustic measures as functions of angle and distance from the source. Refer to Volume 1 of this handbook, "USAF Bioenvironmental Noise Data Handbook, Vol 1: Organization, Content and Application", AMRL-TR-75-50(1) 1975, for discussion of the objective and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc.

PREFACE

This report was prepared by the Biodynamic Environment Branch, Aerospace Medical Research Laboratory, under Project/Task 723104, Measurement and Prediction of Noise Environments of Air Force Operations.

The author gratefully acknowledges Mr. John Cole for his assistance in preparing this report, Capt. Nick Farinacci and Mr. Robert Lee for their assistance in acquiring the raw data, Maj. Wilbur Sappington and his staff (USAF Hospital/SGPF, Davis-Monthan AFB, Arizona) for additional near-field data, Mr. Keith Kettler, Mr. Henry Mohlman and Mr. David Eilerman of the University of Dayton for assistance in the mechanics of data processing and Mrs. Norma Peachey and Mr. Mike Patterson for assistance in typing and preparation of the graphics.

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INTRODUCTION

The USAF A-10A is a close support/tactical bomber-type aircraft powered by two TF34-GE-100 turbofan engines, the major source of ground runup noise. A second source of less importance is the aircraft's on-board auxiliary power unit, a small jet engine used to supply electrical and air power to start the turbofan engines. The aircraft was manufactured by the Northrup Corporation and the engines by General Electric Company.

This volume provides measured and extrapolated data defining bioacoustic environments produced by this aircraft during ground runup operations. Such data are essential to evaluate ear protection requirements, limiting personnel exposure times, voice communication capabilities, and annoyance problems associated with ground runups of the A-10A aircraft. The measured data presented in this volume were acquired by the Aerospace Medical Research Laboratory (AMRL), and the USAF Hospital/SGPF, Davis-Monthan AFB, Arizona.

This volume is one of a series published by the (AMRL) under the same number (AMRL-TR-75-50) as a multi-volume handbook that quantifies the noise environments produced at flight/ground crew locations and in surrounding communities by operations of Air Force aircraft and ground support equipment. The far-field, community-type noise data in the handbook describe the noise produced during *ground operations* of aircraft, ground support equipment, and other ground-based equipment or facilities.

Volume 1 of this handbook discusses the objectives and design of the handbook, types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc. Volume 2 provides a method and data for adjusting the handbook's far-field noise data, which are for standard meteorological conditions (15°C temperature, 70% rel humidity, 0.760 meters Hg barometric pressure), to derive comparable data for other meteorological conditions. *Refer to Volumes 1 and 2* (references 1 and 2 for such information because it is not repeated in other handbook volumes.

A cumulative index lists those aerospace systems contained in the handbook, and identifies the specific volumes containing each type of environmental noise data available (i.e., in inflight/flight crew and passenger noise, near-field/ground crew noise, far-field/community noise). Volume numbers are assigned sequentially as individual volumes are published. This index is periodically updated as individual volumes are published and is available upon request from AMRL/BBE, Wright-Patterson AFB, OH 45433. Organizations on the distribution list for the handbook will automatically receive a copy of each updated index.

Direct any questions concerning the technical data in this report and other handbook volumes to: AMRL/BBE, Wright Patterson AFB, OH 45433; AUTOVON 78-53675 or 78-53664; Commercial (513) 255-3675 or (513) 255-3664.

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1. Cole, John N., *USAF Bioenvironmental Noise Data Handbook, Volume 1: Organization, Content and Application*, AMRL-TR-75-50 (1) Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, 1975.
 2. Cole, John N., *USAF Bioenvironmental Noise Data Handbook, Volume 2: Procedure to Evaluate Effects of Non-standard Meteorological Conditions on Far-Field Noise*, AMRL-TR-75-50 (2), AMRL, WPAFB, OH, 1975.

NEAR-FIELD NOISE

MEASUREMENTS

AMRL and USAF Hospital/SGPF (Davis-Monthan AFB) acquired near-field noise data on the A-10A aircraft during ground runup operations of its auxiliary power unit (APU) and turbofan engines. For the AMRL tests the aircraft was located on a concrete runup pad at Edwards AFB with no significant reflecting surfaces in the vicinity except the ground plane. The SGPF tests were conducted on the parking apron at Davis-Monthan AFB under normal parking conditions (i.e., other aircraft were parked nearby). Table 1 gives the surface meteorological conditions and the five engine or APU power conditions. The ground-crew chief selected power conditions and near-field locations generally used during routine maintenance or engine runup for preflight checks.

At each near-field location a test engineer randomly moved a hand-held microphone in and around each location, probing all areas where a crew member's head would normally be located. For the AMRL tests he recorded all the noise samples on magnetic tape. During analysis of each sample, he determined the one-third octave band root-mean-square sound pressure using a 4- or 8-second integration time to derive a power-averaged level for each location. For the SGPF test, the test engineer read octave band sound pressure levels at each location using a GR 1933 octave band analyzer. Figure 1 shows the 15 near-field locations where ground crew are usually located for maintenance and/or preflight checkout operations. Estimates of noise levels at other locations are difficult in the near-field since the noise source is spatially distributed, i.e., not a point source. The noise levels at near-field locations can vary widely depending upon relative distances from each noise source (intake noise, exhaust noise, panel resonances, internal engine noise through the engine wall, etc.).

Table 1 lists the numeric/alphabetic designators used on the data pages in this report to identify the measurement locations and test conditions. For example, the designator 1/A means ground crew location 1 and test condition A.

RESULTS

The measured data presented in Table 2 define the sound pressure levels (SPL) produced by the A-10A aircraft at the 15 ground crew locations. This table includes the overall, 1/3 octave band (locations 1 to 10), and octave band (locations 1 through 15) levels. From these data one can calculate the variety of measures given in Table 3 which are widely used to assess the effects of noise on personnel and their performance.

All near-field data are for the meteorological conditions at the time of test but are valid for all typical airbase meteorology because of the short sound propagation distances involved.

TABLE 1
MEASUREMENT LOCATIONS AND TEST CONDITIONS
FOR NEAR-FIELD NOISE MEASUREMENTS

A-10A Aircraft, Ground Runups
Edwards AFB CA, 31 May 1975, Tail # 31664
Davis-Monthan AFB, 19 October 1976, Tail # 750267

Ground Crew Location

1	Marshall
2	Observer
3	Crew Chief on Ladder
4	Wheel Chock Pull
5	Wing Tip
6	Trim Adjustment
7	Observer
8 (Outboard Side of Engine)	Hydraulic Leak Check — Cowling Removed
9 (Between Engine and Fuselage)	Hydraulic Leak Check — Cowling Removed
10	APU Operator (Cockpit Open)
11	APU Drain Check
12	APU Fire Guard
13	Actuator Check
14	Gun Drum Loading
15 (Underneath Engine)	Engine No. 1, Check

Aircraft Engine Condition

A	APU Only, Engines Off
B	Both Engines Idle
C	#1 (Left) Engine Maximum Continuous Power, #2 (Right) Engine Idle
D	#1 Engine Maximum Power, #2 Engine Idle
E	Both Engines Maximum Power

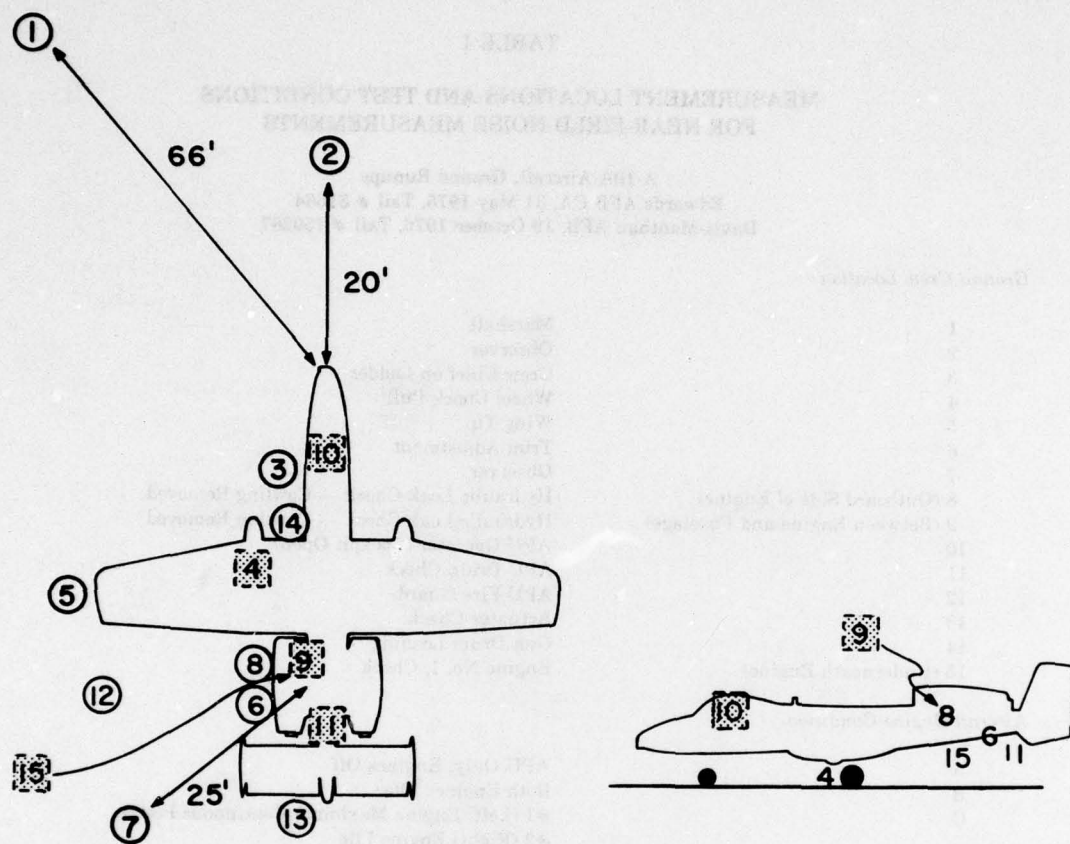
Meteorology

31 May 1975 (Locations 1-9)

Temperature	22 C
Bar Pressure	0.699 M Hg
Rel Humidity	36 %
Wind — Speed	5.1 M/Sec (10 Kts)
— Direction	220 Deg

19 October 1976 (Locations 10-15)

Temperature	28 C
Bar Pressure	0.696 M Hg
Rel Humidity	29 %
Wind — Speed	0-3.6 M/Sec (0-7 Kts)
— Direction	22 Deg



**Figure 1. Near-Field Measurement Locations at Pad 18,
Edwards AFB CA**

FAR-FIELD NOISE

MEASUREMENTS

AMRL acquired most near- and all far-field data during a 1-2 hour test period, thus keeping similar meteorological conditions. Figure 2 shows the ground runup pad, ground cover, aircraft orientation and 19 microphone measurement sites on each of two semicircles. The center of the 75 meter radius semicircle used in surveying the TF34-GE-100 engines was on the ground directly below the intersection of the aircraft's centerline and the plane passing through both engines' exhaust-nozzle exits. The center of the 35 meter semicircle used in the noise survey of the auxiliary power unit was on the ground directly below the center of the APU's exhaust-nozzle exit (APU exhausts on left side of fuselage, near engine number 1). The ground runup pad did not have a blast deflector; therefore, the engines' exhausts were in a "free-flow" condition.

Table 4 provides cockpit readouts of engine characteristics (%RPM, fuel flow, etc.) for each power setting used in the far-field tests. Also listed in this table are the surface meteorological conditions during data acquisition.

All 38 microphone measurement sites are in the acoustic far-field of their respective source where the sound wave-fronts spherically diverge and the noise source may be regarded as a point source.

A portable microphone/tape-recorder system was used to sequentially record the noise at each far-field location. The microphone was attached to a hand-held pole, pointed at the source (0° angle of incidence) and vertically scanned from 0.5 to 3 meters for a period of 5-10 seconds during data acquisition at each microphone location. These samples were then time-integrated to derive a root-mean-square sound pressure level. Vertical scanning and time-integrating together reduce anomalies frequently present in data acquired by a fixed height microphone.

RESULTS

Table 5 lists the overall and 1/3 octave band SPL measured at the far-field locations under meteorological conditions at the time of the test. Data in all other figures and tables are based on these levels. These data were normalized to 100 meters distance and standard meteorological conditions (15 C temperature, 70% relative humidity, 0.760 meter Hg barometric pressure) and used to derive the graphic data in Figure 3 which provides a compact summary of the far-field noise characteristics of the A-10A aircraft in a standard format.

Figure 4 and Table 6 present two basic acoustic measures, the acoustic power levels and the directivity index, respectively. The acoustic power level describes the power radiated by the source as a function of the frequency. The directivity index is a standard acoustical engineering measure that describes the geometric way in which the source radiates this power as a function of both frequency and angle from source. These basic source measures are primarily of interest for acoustical engineers and noise generation/control specialists.

Estimates of the noise levels for intermediate power settings (e.g., 88% engine core speed) and/or different number of engines operating (e.g., single engine) can be determined as explained in Volume 1 of this handbook.

Figures 5 through 11 are sets of equal noise contours describing seven different measures of noise as a function of angle and distance from the source for standard day meteorology. They are respectively, overall sound pressure level, C-weighted sound level, A-weighted sound level, perceived noise level, speech interference level, permissible exposure times for personnel and octave band sound pressure levels.

Since the APU intake is under the aircraft and the exhaust is on the left side of the fuselage, the noise field it produces is asymmetric with respect to the aircraft centerline. Noise from the APU in this report is applicable only to the left side. Because of fuselage shielding, the noise on the right side will be less than the noise presented in this report.

Data excessively influenced by spurious background/electronic noise were eliminated from all figures and tables. No data are presented at the 180 degree location for higher power settings because of turbulent air flow behind the aircraft. Typically, the A-weighted level for that angle is 10 to 20 dBA below the level at the 170 degree location.

Test personnel performed noise surveys during quiet periods when the background noise was minimal, e.g., early in the morning when no other aircraft or engine test stands were operating. Data eliminated because they were near the background/electronic noise were generally not significant because the levels were so low. In a few cases, there are so many data points missing that the octave-band sound pressure level figures have no contours for an entire octave band (e.g., Figure 11, 31.5 Hz band, idle power).

Volume 2 of the handbook describes the influence of meteorology on far-field noise environments, and provides, if required, the factors necessary to adjust the handbook's standard meteorological day data.

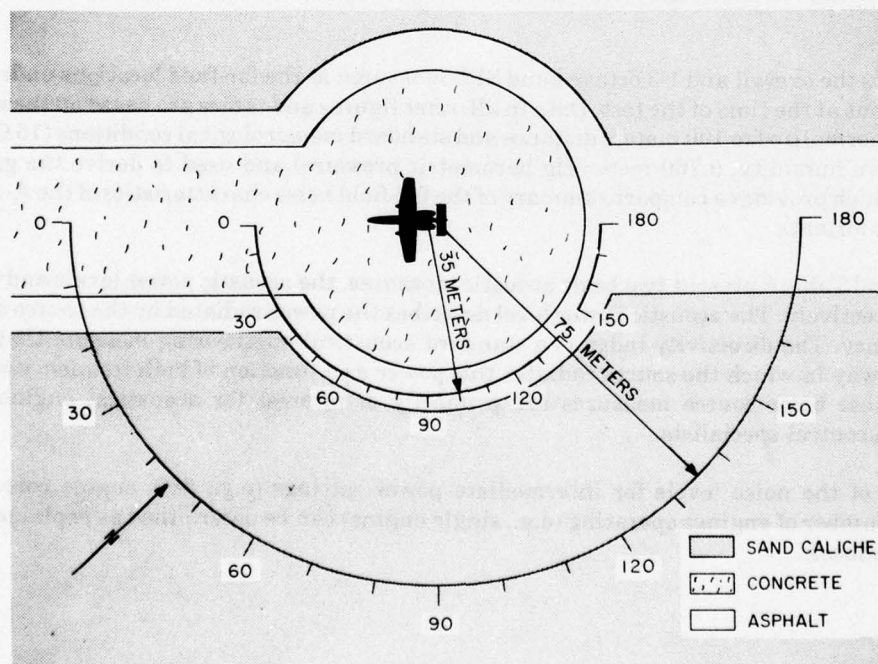


Figure 2. Far-Field Measurement Locations at Pad 18, Edwards AFB CA

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)															
1/3 OCTAVE BAND															
2															
NOISE SOURCE/SUBJECT: (OPERATION:) IDENTIFICATION:)															
A-10A AIRCRAFT () OMEGA 3.2															
GROUND CREW () TEST 75-037-001															
NEAR FIELD NOISE () RUN 01															
24 JUN 75															
PAGE F1															
LOCATION/CONDITION															
FREQ (HZ)	1/A	2/A	3/A	4/A	5/A	6/A	7/A	1/B	2/B	3/B	4/B	5/B	6/B	7/B	8/B
25	83	78	88	78	67<	78	71<	78	84	85	77	64<	81	73<	99
31.5	78	73	87	80	70<	79	73	74	82	78	76	68<	80	74	100
40	73	70	84	79	70	78	72	70	81	76	77	69<	80	73	99
50	67	67	81	81	73	79	75	67	75	72	74	69	77	75	102
63	66	69	79	84	75	84	78	69	73	74	78	71	81	81	102
80	66	69	79	85	78	89	80	71	72	75	78	76	83	82	103
100	67	70	79	85	78	89	82	76	77	78	83	80	91	84	101
125	67	71	82	88	86	92	84	78	78	81	83	80	91	81	100
160	71	73	84	91	86	93	85	77	77	84	79	82	92	79	98
200	75	77	90	90	82	91	84	76	76	85	88	76	92	79	95
250	79	81	95	95	83	96	82	73	71	81	78	70	85	74	93
315	79	81	91	93	86	98	88	72	70	81	77	71	83	78	91
400	75	78	90	95	79	98	92	71	75	83	80	76	88	85	90
500	74	75	89	93	86	96	89	67	77	81	79	76	89	80	90
630	74	75	93	95	87	94	86	72	80	81	80	76	88	78	90
800	70	78	92	96	85	94	89	73	76	84	80	74	84	80	91
1000	70	76	92	95	84	95	88	76	79	84	80	75	85	79	92
1250	75	78	93	94	88	98	88	77	81	86	79	73	85	81	93
1600	77	78	96	94	86	97	88	76	80	87	81	72	85	80	93
2000	73	78	98	93	87	97	87	78	81	89	80	69	83	77	93
2500	75	80	99	95	89	97	86	80	83	89	80	69	81	78	89
3150	78	81	100	97	94	101	90	78	81	87	77	70	83	79	94
4000	81	82	103	100	97	104	92	78	81	91	79	73	86	83	96
5000	81	83	102	100	95	104	93	78	81	89	75	71	83	81	94
6300	81	85	104	105	100	110	97	76	78	87	75	70	82	81	95
8000	80	81	101	97	93	107	96	72	76	86	72	70	82	79	95
10000	81	86	103	104	96	112	100	68	73	84	69	65	78	78	92
OVERALL	91	93	111	111	105	116	105	90	93	99	94	89	100	94	111

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)															
1/3 OCTAVE BAND															
NOISE SOURCE/SUBJECT: (OPERATION:) IDENTIFICATION:)															
A-10A AIRCRAFT () OMEGA 3.2															
GROUND CREW () TEST 75-037-001															
NEAR FIELD NOISE () RUN 02															
24 JUN 75															
PAGE F2															
LOCATION/CONDITION															
FREQ (HZ)	9/8	1/C	2/C	3/C	4/C	5/C	6/C	7/C	1/D	2/D	3/D	4/D	5/D	6/D	7/D
25	93	78	83	84	90	85	91	96	83	83	85	90	86	93	98
31.5	98	76	79	85	92	85	92	99	79	81	87	93	88	93	100
40	96	77	83	87	94	87	94	99	81	82	88	97	91	94	100
50	96	78	83	88	93	88	95	100	80	82	88	96	90	97	102
63	98	82	86	90	97	92	98	103	82	84	90	95	92	97	102
80	99	80	82	86	89	93	99	99	82	84	88	93	94	101	101
100	102	82	85	87	93	94	106	98	83	87	89	95	97	109	101
125	100	85	85	88	96	93	101	97	87	88	90	100	94	105	99
160	99	84	85	90	96	89	99	101	88	88	93	99	92	102	103
200	98	81	84	91	94	86	102	103	86	87	94	98	90	102	106
250	95	82	84	92	93	85	103	103	87	85	93	96	87	102	107
315	92	82	81	91	90	87	98	99	83	84	92	94	91	103	102
400	90	78	81	89	93	90	99	100	81	83	92	98	96	100	103
500	93	78	83	92	92	92	98	100	80	84	93	98	95	102	104
630	94	77	85	92	93	88	100	98	80	86	93	103	93	108	102
800	93	79	84	92	93	88	102	98	81	88	98	100	98	109	102
1000	93	86	89	93	93	91	106	96	88	88	98	100	99	115	102
1250	93	85	87	94	92	90	103	96	91	93	101	98	97	114	102
1600	92	85	87	96	93	90	104	96	87	88	97	96	94	111	99
2000	94	90	91	101	93	91	106	96	88	92	100	97	94	109	99
2500	93	100	98	109	106	105	119	105	93	96	105	101	98	111	103
3150	91	100	99	110	109	108	122	108	98	104	112	112	109	123	110
4000	96	94	94	104	98	96	111	102	93	98	106	103	103	112	104
5000	96	97	97	107	98	98	112	104	93	98	106	98	98	109	103
6300	95	96	96	107	98	98	112	104	94	97	107	99	102	112	110
8000	96	91	93	104	96	99	111	110	88	95	104	95	100	109	104
10000	92	89	91	103	92	96	109	104	87	94	104	95	99	109	107
OVERALL	110	105	105	116	113	111	125	116	103	108	116	115	113	126	118

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)										IDENTIFICATION:	
2											
NOISE SOURCE/SUBJECT:										OMEGA 3.2	
A-10A AIRCRAFT										TEST 75-037-001	
GROUND CREW										RUN 03	
NEAR FIELD NOISE										24 JUN 75	
										PAGE F3	
LOCATION/CONDITION											
FREQ (HZ)	1/E	2/E	3/E	4/E	5/E	6/E	7/E				
25	81	84	90	95	89	96	101				
31.5	81	84	89	97	92	94	101				
40	81	86	91	98	92	98	101				
50	82	85	91	98	93	99	105				
63	85	87	91	98	95	97	104				
80	84	87	91	94	98	102	104				
100	86	90	92	98	100	111	104				
125	91	92	95	102	98	107	102				
160	90	91	95	100	96	102	104				
200	86	89	93	99	95	102	107				
250	87	89	95	98	92	104	107				
315	86	87	94	97	90	103	104				
400	83	87	94	99	93	103	104				
500	81	87	95	98	95	104	104				
630	82	88	95	99	96	106	102				
800	85	88	96	106	96	115	103				
1000	92	92	101	105	100	120	104				
1250	92	98	105	102	98	120	104				
1600	91	94	101	101	95	114	101				
2000	91	95	102	100	95	112	101				
2500	96	99	106	105	100	113	104				
3150	102	106	111	116	113	121	114				
4000	95	101	107	105	102	116	105				
5000	94	100	107	101	98	111	104				
6300	95	101	107	103	101	114	110				
8000	91	98	104	98	99	112	105				
10000	90	97	104	98	99	111	107				
OVERALL	106	111	117	118	115	127	120				
LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.											

LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)															IDENTIFICATION:	
2																
NOISE SOURCE/SUBJECT: (OPERATION:)																
A-10A AIRCRAFT ()																
GROUND CREW ()																
NEAR FIELD NOISE ()																
LOCATION/CONDITION																
FREQ (HZ)	1/A	2/A	3/A	4/A	5/A	6/A	7/A	1/B	2/B	3/B	4/B	5/B	6/B	7/B	8/B	
31.5	84	80	91	84	74	83	77	79	87	86	81	72	85	78	104	
63	71	73	84	88	81	90	83	74	78	87	82	78	86	85	107	
125	73	76	87	93	89	96	88	82	82	87	86	85	96	86	104	
250	83	84	97	98	88	101	90	79	78	87	89	78	93	82	98	
500	79	81	96	99	90	101	94	75	82	86	84	81	93	87	95	
1000	77	82	97	99	91	101	93	80	84	90	84	79	89	85	96	
2000	80	83	102	99	92	101	92	83	86	93	85	75	88	83	97	
4000	85	87	107	104	100	108	96	82	85	94	82	76	89	86	99	
8000	85	89	107	108	102	115	103	78	81	91	77	74	86	84	99	
OVERALL	91	93	111	111	105	116	105	90	93	99	94	89	100	94	111	

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)															
2															
NOISE SOURCE/SUBJECT: (OPERATION:) IDENTIFICATIONS)															
A-10A AIRCRAFT () OMEGA 3.2)															
GROUND CREW () TEST 75-037-001)															
NEAR FIELD NOISE () RUN 02)															
24 JUN 75)															
PAGE J2)															
LOCATION/CONDITION															
FREQ (HZ)	9/8	1/C	2/C	3/C	4/C	5/C	6/C	7/C	1/D	2/D	3/D	4/D	5/D	6/D	7/D
31.5	100	82	86	90	97	91	97	103	86	87	92	99	93	98	104
63	102	85	88	93	99	96	102	106	86	88	93	100	97	103	107
125	105	88	90	93	100	97	108	103	91	92	96	103	99	111	106
250	100	86	88	96	97	91	106	106	90	90	98	101	94	107	116
500	97	82	88	96	97	95	104	104	85	89	97	105	100	109	107
1000	97	89	91	98	97	95	108	102	93	95	103	104	103	118	107
2000	98	100	99	110	107	105	120	106	95	98	107	103	100	115	105
4000	99	102	102	112	110	108	123	110	100	105	113	112	110	123	111
8000	99	97	98	110	100	102	115	111	95	100	110	101	105	115	112
OVERALL	110	105	105	116	113	111	125	116	103	108	116	115	113	126	118

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)		IDENTIFICATION:					
2	OCTAVE BAND						
NOISE SOURCE/SUBJECT:		TEST 75-037-001					
A-10A AIRCRAFT		OMEGA 3.2					
GROUND CREW		RUN 03					
NEAR FIELD NOISE		24 JUN 75					
		PAGE J3					
		LOCATION/CONDITION					
FREQ (HZ)	1/E	2/E	3/E	4/E	5/E	6/E	7/E
31.5	85	89	95	101	96	101	105
63	88	91	96	102	100	104	109
125	94	96	99	105	103	113	108
250	91	93	99	103	97	108	111
500	87	92	99	103	100	109	108
1000	95	99	107	109	103	123	108
2000	98	101	108	107	102	118	107
4000	103	108	114	116	113	123	115
8000	97	103	110	105	105	117	112
OVERALL	106	111	117	118	115	127	120

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)		IDENTIFICATION:					
OCTAVE BAND							
2		OMEGA 3.2					
		TEST 76-029-001					
		RUN 01					
		27 OCT 76					
		PAGE F1					
NOISE SOURCE/SUBJECT:		LOCATION/CONDITION					
(OPERATION:							
A-10A AIRCRAFT							
GROUND CREW							
NEAR FIELD							
FREQ (HZ)		10/A	11/A	12/A	13/A	14/A	15/A
31.5		79	88	81	82	79	101
63		80<	92	89	86	83	104
125		80<	99	91	90	87	107
250		90	104	88	99	94	110
500		90	106	93	98	95	110
1000		86	106	88	98	92	109
2000		90	108	91	104	93	117
4000		92	110	96	112	99	124
8000		93	116	98	115	102	125
OVERALL		98	118	102	117	105	128

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

NOTE: DATA PROVIDED BY USAF HOSPITAL/SCPF, DAVIS-MONTHAN AFB AZ.

TABLE: MEASURES OF HUMAN NOISE EXPOSURE													
3													
NOISE SOURCE/SUBJECT: (OPERATION:)													
A-10A AIRCRAFT													
GROUND CREW													
NEAR FIELD NOISE													
LOCATION/CONDITION													
1/A	2/A	3/A	4/A	5/A	6/A	7/A	1/B	2/B	3/B	4/B	5/B	6/B	7/B 8/B
HAZARD/PROTECTION													
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DB) AT EAR													
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DB) AT EAR													
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)													
NO PROTECTION													
OASLC	90	92	110	109	103	114	103	89	92	98	94	89	100 93 110
OASLA	89	92	111	110	105	115	104	88	91	99	90	84	96 92 105
T	202	120	4.5	5	13	2.2	15	240	143	36	170	480	60 120 13
MINIMUM QPL EAR MUFFS													
OASLA*	65	68	85	85	79	91	80	64	66	73	70	66	77 70 86
T	960	960	404	404	960	143	960	960	960	960	960	960	960 339
AMERICAN OPTICAL 1700 EAR MUFFS													
OASLA*	60	63	80	80	73	87	76	59	61	67	65	61	72 65 82
T	960	960	960	960	960	285	960	960	960	960	960	960	960 679
V-51R EAR PLUGS													
OASLA*	61	64	81	81	75	86	76	60	63	70	65	59	71 65 78
T	960	960	807	807	960	339	960	960	960	960	960	960	960 960
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS													
OASLA*	48	52	69	70	63	75	64	47	50	57	51	46	57 52 66
T	960	960	960	960	960	960	960	960	960	960	960	960	960 960
H-133 GROUND COMMUNICATION UNIT													
OASLA*	61	64	82	81	75	86	75	61	64	71	64	57	69 64 79
T	960	960	679	807	960	339	960	960	960	960	960	960	960 960
COMMUNICATION													
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)													
PSIL	79	82	98	99	91	101	93	79	84	90	84	78	90 85 96
ANNOYANCE													
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)													
TONE CORRECTION (C IN DB)													
PNLT	104	108	126	127	120	130	118	102	106	113	106	99	112 107 120
C	0	2	1	2	2	1	1	0	1	0	2	1	1 1 0

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.

TABLE: MEASURES OF HUMAN NOISE EXPOSURE														IDENTIFICATIONS	
3														OMEGA 3.2	
NOISE SOURCE/SUBJECT: (OPERATION:)														TEST 75-037-001	
A-10A AIRCRAFT ()														RUN 02	
GROUND CREW ()														24 JUN 75	
NEAR FIELD NOISE ()														PAGE H2	
LOCATION/CONDITION															
9/B	1/C	2/C	3/C	4/C	5/C	6/C	7/C	1/D	2/D	3/D	4/D	5/D	6/D	7/D	
HAZARD/PROTECTION															
G-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DBC) AT EAR															
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DBA) AT EAR															
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)															
NO PROTECTION															
OASLC	109	105	104	115	112	110	125	115	103	107	115	114	112	125	117
OASLA	105	106	106	116	113	112	126	115	103	108	116	115	113	126	117
T	13	11	11	P	3.2	3.8	P	2.2	18	8	P	2.2	3.2	P	P
MINIMUM QPL EAR MUFFS															
OASLA*	86	78	79	89	86	84	98	91	77	81	89	88	86	98	93
T	339	960	960	202	339	480	42	143	960	807	202	240	339	42	101
AMERICAN OPTICAL 1700 EAR MUFFS															
OASLA*	82	72	72	82	80	79	92	87	71	75	83	83	81	93	88
T	679	960	960	679	960	960	120	285	960	960	571	571	807	101	240
V-51R EAR PLUGS															
OASLA*	79	74	75	85	82	80	94	86	73	77	86	85	83	97	89
T	960	960	960	404	679	960	85	339	960	960	339	404	571	50	202
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS															
OASLA*	66	62	63	73	69	68	81	74	61	65	73	72	71	84	76
T	960	960	960	960	960	960	807	960	960	960	960	960	960	480	960
H-133 GROUND COMMUNICATION UNIT															
OASLA*	78	80	79	90	88	87	101	88	77	82	90	90	87	101	90
T	960	960	960	170	240	285	25	240	960	679	170	170	285	25	170
COMMUNICATION															
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)															
PSIL	97	90	93	101	100	98	111	104	91	94	102	104	101	114	107
ANNOYANCE															
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)															
TONE CORRECTION (C IN DB)															
PNLT	121	121	121	131	131	129	143	132	120	126	133	134	131	145	134
C	1	2	1	1	3	3	3	2	2	2	2	3	3	4	2

* BASED ON CALCULATED SPL SPECTRUM UNDER PROTECTIVE DEVICE.
P ADDITIONAL EAR PROTECTION REQUIRED.

TABLE: MEASURES OF HUMAN NOISE EXPOSURE								IDENTIFICATION:
								OMEGA 3.2
								TEST 75-037-001
								RUN 03
								24 JUN 75
								PAGE H3
<hr/>								
NOISE SOURCE/SUBJECT:	(	OPERATION:)					
A-10A AIRCRAFT	()					
GROUND CREW	()					
NEAR FIELD NOISE	()					
<hr/>								
				LOCATION/CONDITION				
	1/E	2/E	3/E	4/E	5/E	6/E	7/E	
<hr/>								
HAZARD/PROTECTION								
C-WEIGHTED OVERALL SOUND LEVEL (OASLC IN DB) AT EAR								
A-WEIGHTED OVERALL SOUND LEVEL (OASLA IN DB) AT EAR								
MAXIMUM PERMISSIBLE TIME (T IN MINUTES) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)								
NO PROTECTION								
OASLC	105	110	116	118	115	127	119	
OASLA	106	111	117	119	116	128	119	
T	11	4.5	P	P	P	P	P	
MINIMUM QPL EAR MUFFS								
OASLA*	79	84	90	91	88	100	94	
T	960	480	170	143	240	30	85	
AMERICAN OPTICAL 1700 EAR MUFFS								
OASLA*	74	78	84	85	83	94	89	
T	960	960	480	404	571	85	202	
V-51R EAR PLUGS								
OASLA*	76	80	87	89	85	100	90	
T	960	960	285	202	404	30	170	
AMERICAN OPTICAL 1700 EAR MUFFS PLUS V-51R EAR PLUGS								
OASLA*	63	68	75	76	72	88	77	
T	960	960	960	960	960	240	960	
H-133 GROUND COMMUNICATION UNIT								
OASLA*	80	85	91	94	91	101	93	
T	960	404	143	85	143	25	101	
<hr/>								
COMMUNICATION								
PREFERRED SPEECH INTERFERENCE LEVEL (PSIL IN DB)								
PSIL	93	97	105	107	101	117	108	
<hr/>								
ANNOYANCE								
PERCEIVED NOISE LEVEL, TONE CORRECTED (PNLT IN PNDB)								
TONE CORRECTION (C IN DB)								
PNLT	123	128	133	137	135	144	138	
C	2	2	2	3	4	2	3	

TABLE 4
TEST CONDITIONS
FOR FAR-FIELD NOISE MEASUREMENTS

A-10A Aircraft, Ground Runups, Edwards AFB CA
31 May 1975
Tail # 31664

Aircraft Engine Operation

APU Only	Engines Off
Idle	Both Engines 64 % RPM, Core Speed 25 % RPM, Fan Speed 528 C, Fan Turbine Inlet Temperature 400 LBS/HR, Fuel Flow
Maximum Continuous Power (#2 Engine Idle)	#1 (Left) Engine 91 % RPM, NC 77 % RPM, NF 731 C, FTIT 2100 LBS/HR, FF
Maximum Power (#2 Engine Idle)	#1 (Left) Engine 95 % RPM, NC 84 % RPM, NF 810 C, FTIT 2750 LBS/HR, FF
Maximum Power	Both Engines 94.5 % RPM, NC 84 % RPM, NF 810 C, FTIT 2700 LBS/HR, FF

Meteorology

Temperature	22 C
Bar Pressure	0.699 M Hg
Rel Humidity	36 %
Wind — Speed	5.1 M/Sec (10 Kts)
— Direction	220 Deg.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)															
1/3 OCTAVE BAND															
DISTANCE = 35 METERS															
NOISE SOURCE/SUBJECT:															
(OPERATION:															
(A-10A AIRCRAFT															
(TF34-GE-100 ENGINE															
(GROUND RUNUP NOISE															
(FREQ															
((HZ)															
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180															
25															
31.5															
40															
50															
63															
80															
100															
125															
160															
200															
250															
315															
400															
500															
630															
800															
1000															
1250															
1600															
2000															
2500															
3150															
4000															
5000															
6300															
8000															
10000															
OVERALL															
87 91 91 91 93 92 90 89 89 89 86 86 87 87 86 87 89 90 91 89															

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

NOTE: DATA ARE APPLICABLE ONLY FOR LEFT SIDE OF AIRCRAFT BECAUSE APU IS AN ASYMMETRICAL SOURCE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																
1/3 OCTAVE BAND																
DISTANCE = 75 METERS																
NOISE SOURCE/SUBJECT:																
(OPERATION:) METEOROLOGY:)																
(IDLE, BOTH ENGINES) TEMP = 22 C)																
(FAN=24% RPM, CORE=64% RPM) BAR PRESS = .699 M HG)																
(ITT=530 DEG C) REL HUMID = 36 %)																
(FREE FLOW))																
A-10A AIRCRAFT																
TF34-GE-100 ENGINE																
GROUND RUNUP NOISE																
FREQ																
(HZ)																
ANGLE (DEGREES)																
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180																
25																
31.5																
40																
50	55<	55<	55<	56<	54<	55<	58<	54<	58<	55<	55<	56<	57<	56<	57<	58<
63	58<	60<	60<	59<	58<	59<	61<	61<	62<	62<	62<	64<	62<	63<	63<	62<
80	61<	62<	63<	65<	64<	61<	60<	60<	61<	66<	66<	67<	67<	68<	67<	65<
100	68	69	68	71	69	68	66	68	66	67	66	69	70	71	72	72
125	74	74	73	69	67	68	69	69	70	69	70	72	73	72	71	72
160	74	73	72	65	66	72	73	70	70	71	72	73	71	72	71	69
200	74	73	70	63	65	69	68	69	67	67	72	75	74	70	67	65
250	67	66	64	62	62	60	60	60	58	60	58	60	62	60	59	58
315	68	67	62	64	61	62	60	62	65	63	62	64	61	64	60	53<
400	71	69	64	67	65	63	61	66	67	65	67	62	62	66	61	64
500	67	65	65	63	61	61	55	57	59	55	58	60	57	60	58	56
630	68	67	68	66	64	61	58	59	56	58	61	58	61	59	60	58
800	69	66	68	70	67	64	63	61	57	58	56	57	59	58	56	57
1000	71	68	67	69	69	67	64	61	58	57	58	55	58	58	56	59
1250	73	71	66	70	67	65	62	60	57	59	59	57	55	58	59	58
1600	73	71	69	72	73	69	65	61	57	60	58	60	58	58	59	58
2000	72	72	69	72	71	68	61	60	57	58	58	61	60	58	58	58
2500	73	73	68	72	70	66	65	61	57	56	58	61	59	61	60	58
3150	72	71	68	69	71	66	63	61	55	57	58	61	59	60	59	56
4000	71	72	68	71	69	67	66	64	58	60	61	62	61	61	61	59
5000	71	70	66	68	67	65	63	59	54	55	58	61	59	60	59	58
6300	68	68	63	67	68	64	62	58	52	54	57	57	57	58	55	54
8000	62	62	59	62	62	59	57	54	46	50	53	54	52	53	52	51
10000	57	56	52	56	55	52	51	48	40	43	46	47	48	46	44	43
OVERALL	84	83	81	82	81	79	78	78	77	77	79	79	79	79	78	77

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)										IDENTIFICATION:									
1/3 OCTAVE BAND										OMEGA 1.4									
DISTANCE = 75 METERS										TEST 75-002-058									
NOISE SOURCE/SUBJECT:										RUN 02									
(OPERATION:)										METEOROLOGY:)									
(MAX CONT. SINGLE ENGINE)										TEMP = 22 C									
(FAN=77% RPM, CORE=91% RPM)										BAR PRESS = .699 M HG									
(ITT=731 DEG C)										REL HUMID = 36 %									
(FREE FLOW)										PAGE 2									
A-10A AIRCRAFT										07 JUL 75									
TF34-GE-100 ENGINE																			
GROUND RUNUP NOISE																			
FREQ	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
(HZ)																			
25	73<	68<	67<	71<	73<	73<	74<	73<	74<	74<	75	76	76	79	82	85	88	87	
31.5	71	71	71	72	72	73	73	74	73	75	75	76	78	82	86	87	89	89	
40	72	72	71	71	74	74	75	75	77	78	77	78	78	82	87	92	93	91	
50	71	71	71	73	72	73	76	75	77	78	78	82	82	83	87	93	94	93	
63	73	74	74	74	75	75	77	78	80	83	82	84	85	86	90	94	95	92	
80	72	72	73	74	74	75	77	79	78	80	81	84	86	89	92	94	94	92	
100	74	75	77	76	78	78	80	79	80	81	81	83	86	89	92	94	94	92	
125	76	77	76	76	76	77	79	79	78	80	80	83	86	87	91	92	90	89	
160	78	78	75	75	76	75	77	79	78	79	80	83	84	87	89	91	85	84	
200	78	78	75	76	75	77	77	76	78	80	80	81	84	87	87	86	83	80	
250	75	76	77	76	76	77	78	78	77	79	78	81	85	86	86	85	84	77	
315	72	76	76	74	74	73	74	76	76	76	78	79	81	85	83	81	81	73	
400	73	74	73	73	72	72	72	75	73	75	75	77	78	80	80	77	75	70	
500	73	74	75	74	72	72	72	74	72	73	74	75	75	78	75	72	71	66	
630	74	74	75	75	72	73	72	71	72	72	72	73	71	73	71	71	68	65	
800	74	73	75	74	72	73	72	71	71	71	72	71	67	71	70	73	68	65	
1000	76	76	77	77	73	75	73	73	72	72	73	72	71	72	71	74	70	68	
1250	78	75	77	79	73	75	74	73	72	74	74	73	74	74	73	73	70	68	
1600	78	78	78	82	78	80	78	75	73	76	75	75	77	75	74	72	70	68	
2000	81	81	81	82	81	81	79	76	75	78	78	77	78	75	74	74	71	69	
2500	89	87	89	94	92	92	92	88	90	89	96	92	87	87	84	82	80	82	
3150	87	87	89	92	90	92	90	88	88	88	95	91	88	87	85	83	80	82	
4000	84	84	84	85	84	85	83	80	79	81	80	80	82	79	76	77	74	74	
5000	85	85	87	90	86	87	85	82	82	85	86	83	83	80	78	78	75	72	
6300	81	81	86	87	83	84	81	80	79	82	83	80	80	78	77	77	73	71	
8000	74	73	77	79	78	81	79	73	76	78	78	81	80	75	73	72	68	66	
10000	70	69	71	75	72	74	73	69	70	73	73	74	73	70	68	67	63	59	
OVERALL	94	94	95	98	96	97	96	94	94	95	99	97	96	98	100	102	102	100	

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)										IDENTIFICATION:									
5										OMEGA 1.4									
1/3 OCTAVE BAND										TEST 75-002-058									
DISTANCE = 75 METERS										RUN 03									
NOISE SOURCE/SUBJECT:										METEOROLOGY:									
(OPERATION:)										TEMP = 22 C									
(MAX POWER, SINGLE ENGINE)										BAR PRESS = .699 M HG									
(FAN=84% RPM, CORE=95% RPM)										REL HUMID = 36 %									
(ITT=810 DEG C)										07 JUL 75									
(FREE FLOW)										PAGE 2									
A-10A AIRCRAFT																			
TF34-GE-100 ENGINE																			
GROUND RUNUP NOISE																			
FREQ (HZ)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	69<	70<	71<	72<	73<	74<	75<	76<	77<	78<	79<	80<	81<	82<	83<	84<	85<	86<	87<
31.5	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
40	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
50	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
63	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92
80	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92
100	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
125	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98
160	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
200	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98
250	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
315	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93
400	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
500	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92
630	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93
800	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93
1000	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
1250	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97
1600	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
2000	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97
2500	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102
3150	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110
4000	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101
5000	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
6300	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
8000	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93
10000	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
OVERALL	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																		
1/3 OCTAVE BAND																		
DISTANCE = 75 METERS																		
NOISE SOURCE/SUBJECT:																		
(OPERATION:)																		
(MAX POWER, BOTH ENGINES)																		
(FAN=84% RPM, CORE=95% RPM)																		
(ITT=810 DEG C)																		
(FREE FLOW)																		
METEOROLOGY: TEMP = 22 C																		
BAR PRESS = .699 M HG																		
REL HUMID = 36 %																		
IDENTIFICATION:																		
OMEGA 1.4																		
TEST 75-002-056																		
RUN 04																		
07 JUL 75																		
PAGE 2																		
FREQ (HZ)																		
0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
25	71<	74<	73<	75<	73<	79	78	77	78	80	78	81	81	83	87	90	94	93
31.5	72	72	74	75	77	77	77	78	79	80	82	83	83	86	91	94	96	94
40	73	75	75	77	78	78	78	82	82	83	83	83	85	88	93	96	100	96
50	75	75	77	76	77	79	79	82	83	83	86	87	87	92	94	100	101	97
63	77	78	78	78	79	82	83	83	85	85	85	87	87	92	95	98	102	98
80	76	78	78	79	80	81	83	85	83	84	87	88	89	92	97	99	104	99
100	80	80	82	82	84	84	86	86	88	88	90	91	91	95	98	98	103	99
125	83	84	82	82	83	84	85	84	86	87	91	91	91	94	95	99	98	96
160	83	83	81	81	83	81	84	84	85	85	87	89	90	93	95	96	95	95
200	81	81	81	81	82	82	83	84	83	85	87	88	89	93	94	93	94	90
250	81	82	81	81	81	82	83	84	83	85	85	87	88	90	92	92	92	85
315	77	79	80	79	80	79	81	81	80	82	84	85	87	88	89	89	88	83
400	78	79	79	78	78	79	78	80	79	80	81	82	83	85	83	85	82	78
500	76	78	78	77	76	77	77	78	77	78	79	79	79	77	76	77	76	75
630	76	78	78	78	76	78	78	79	80	77	78	79	79	77	76	77	76	75
800	77	78	78	76	81	82	79	79	79	79	79	79	79	79	79	77	80	76
1000	82	84	84	80	84	86	81	84	81	81	81	81	80	84	86	81	84	79
1250	91	87	84	85	86	90	86	87	83	82	84	81	82	85	85	82	86	81
1600	86	84	83	84	86	85	85	83	82	82	82	81	81	82	81	81	84	79
2000	85	84	84	86	89	92	89	84	81	81	85	84	82	81	81	82	82	80
2500	87	87	85	88	88	92	87	88	86	87	85	85	83	84	83	82	83	81
3150	94	94	91	94	96	95	94	96	99	102	96	96	91	91	91	89	90	86
4000	85	86	85	87	89	91	89	88	86	87	84	83	84	83	82	81	82	78
5000	84	82	82	85	87	86	83	83	80	83	80	80	80	79	78	78	77	74
6300	82	81	81	84	85	85	83	83	85	89	84	84	84	80	80	80	78	75
8000	77	74	74	77	79	79	76	75	77	76	76	75	73	73	73	73	71	67
10000	73	70	70	73	75	74	72	73	75	78	75	74	76	73	71	71	68	64
OVERALL	98	98	96	98	100	101	99	100	101	103	100	101	100	103	105	107	110	106

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

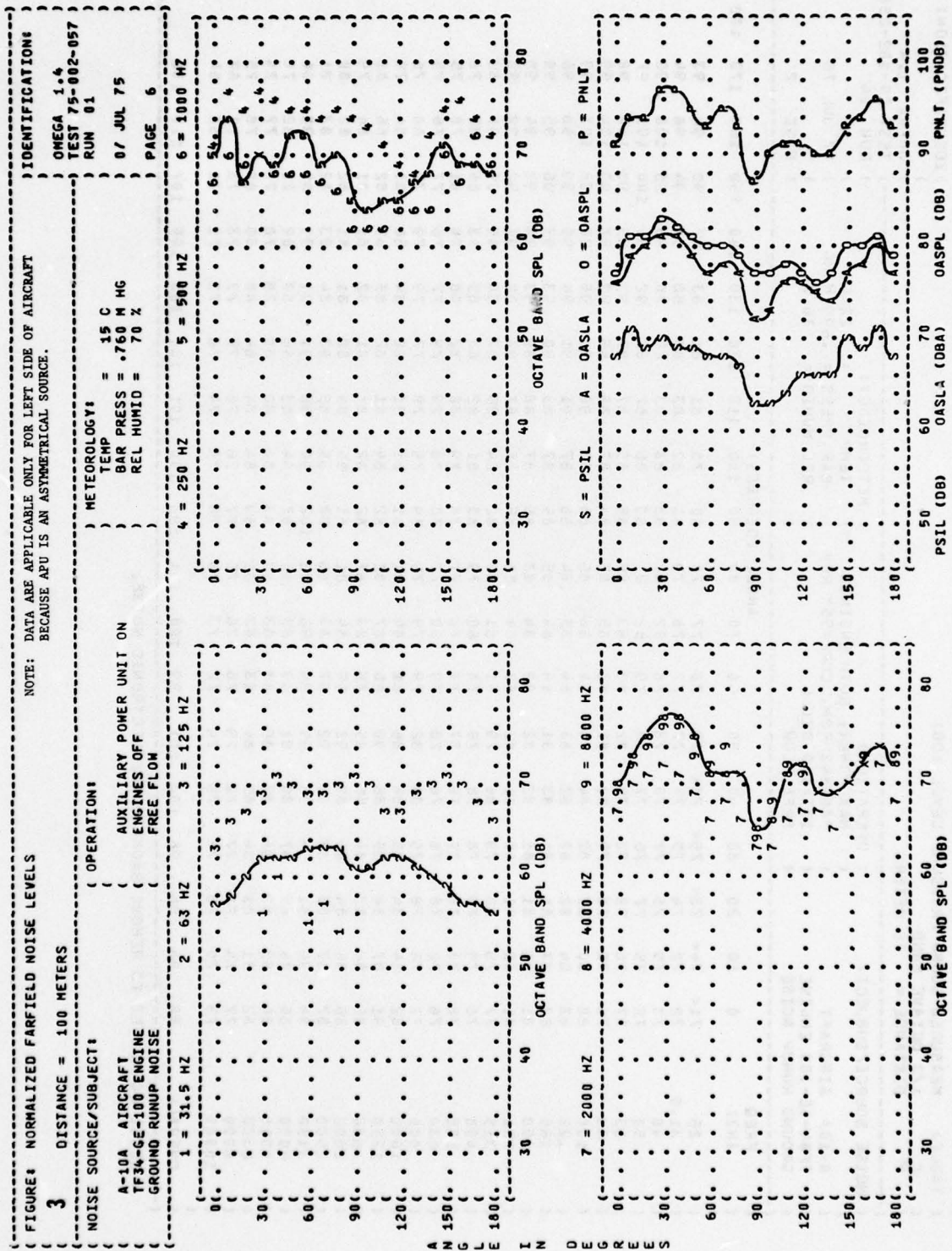


FIGURE 1 NORMALIZED FARFIELD NOISE LEVELS

3 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:

A-10A AIRCRAFT
TF34-GE-100 ENGINE
GROUND RUNUP NOISE

OPERATION:
(IDLE, BOTH ENGINES
(FAN=24% RPM, CORE=64% RPM
(ITT=530 DEG C
(FREE FLOW

METEOROLOGY:
(TEMP = 15 C
(BAR PRESS = .760 M HG
(REL HUMID = 70 %

IDENTIFICATION:
(OMEGA 1.4
(TEST 75-002-050
(RUN 01
(07 JUL 75
(PAGE 6

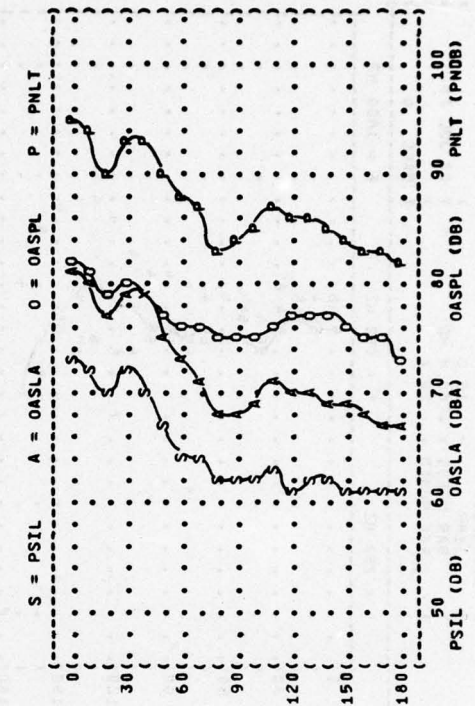
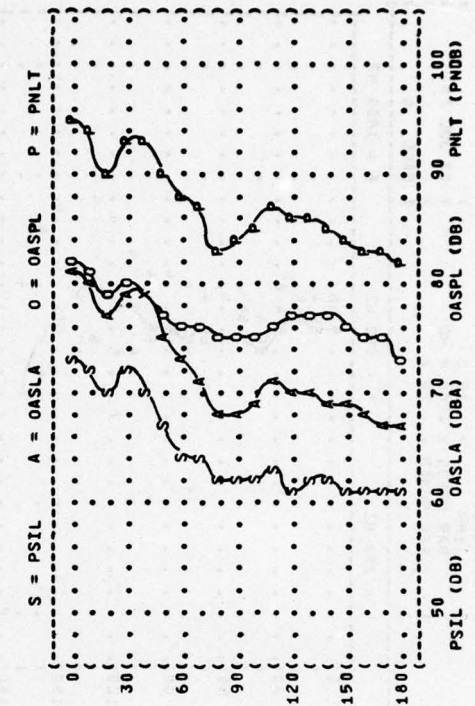
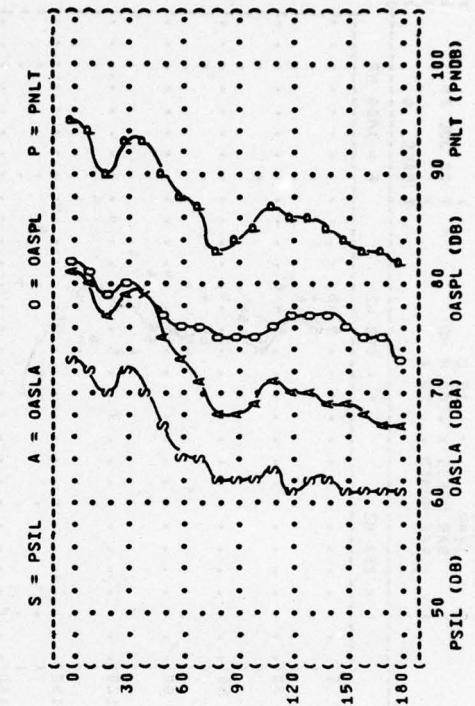
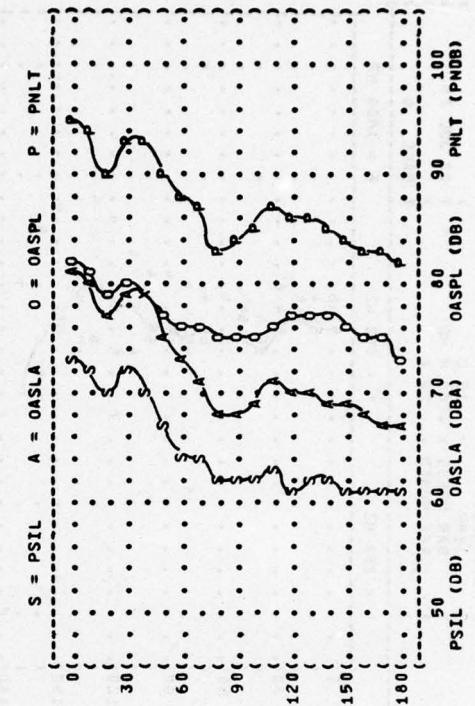
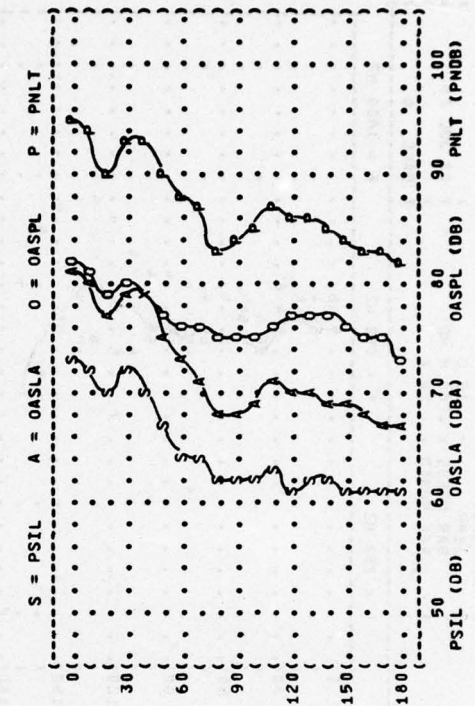
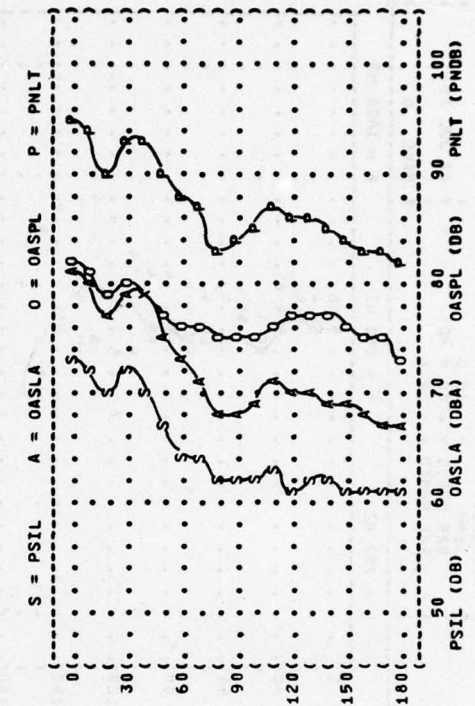
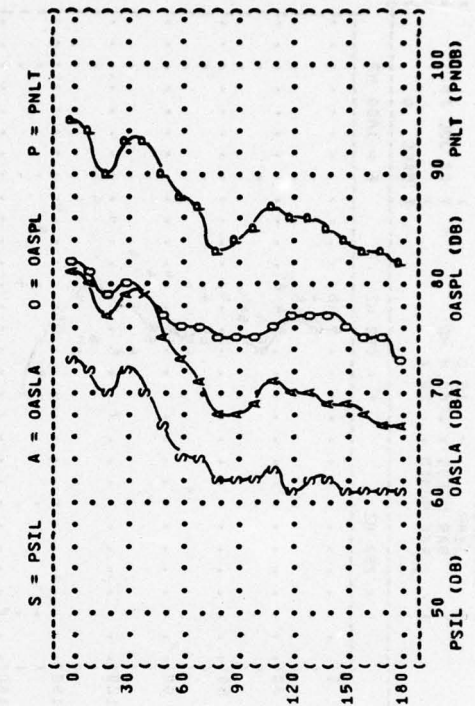
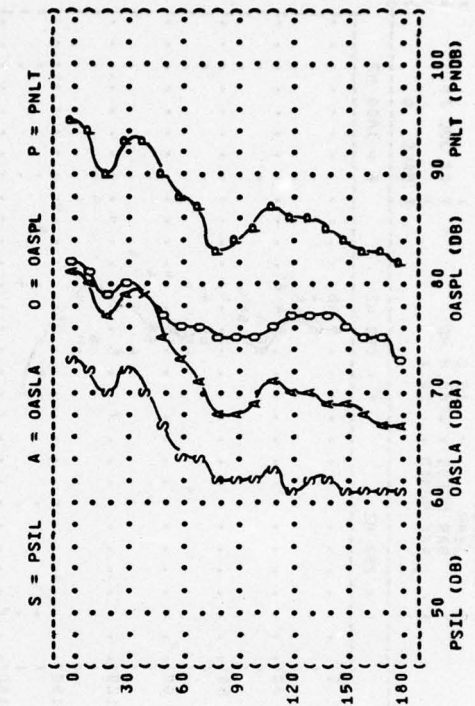
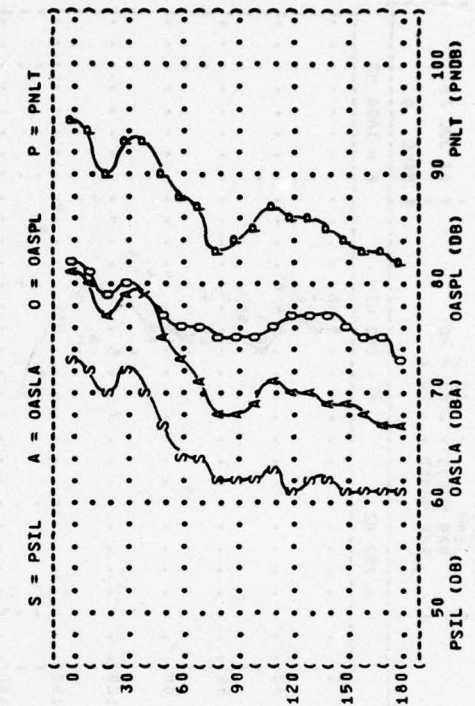
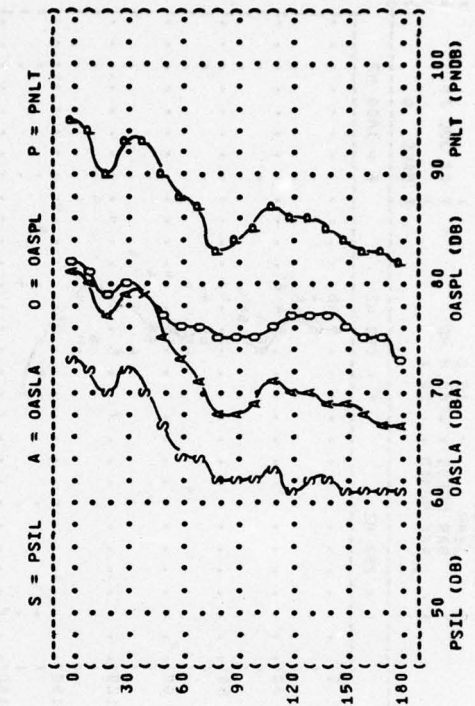
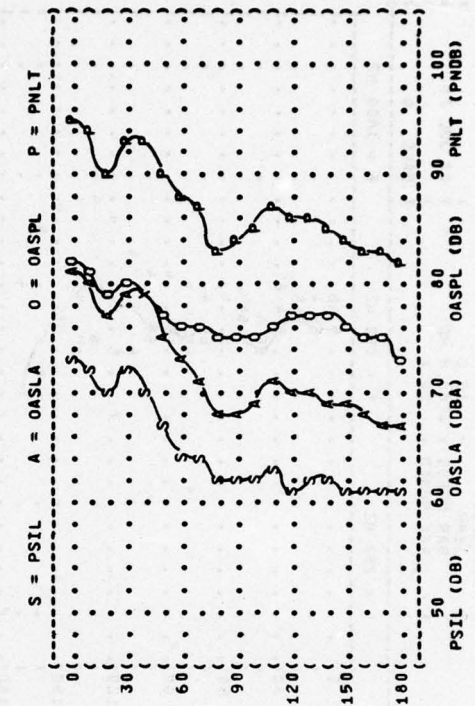
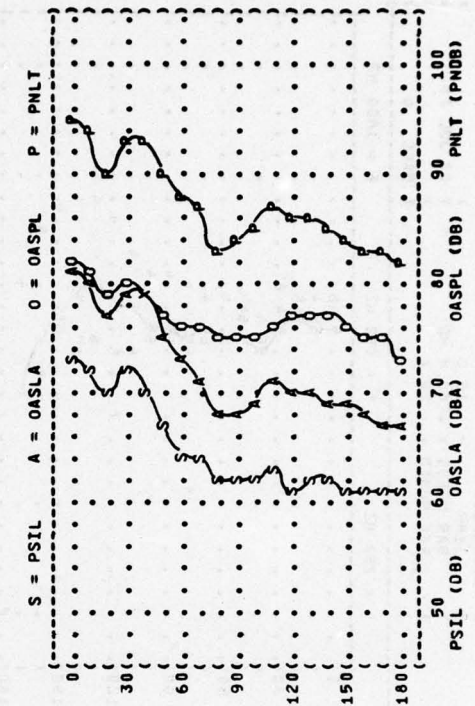
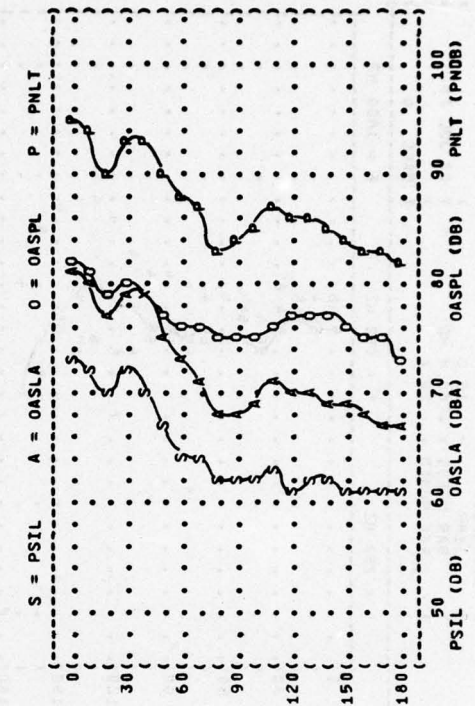
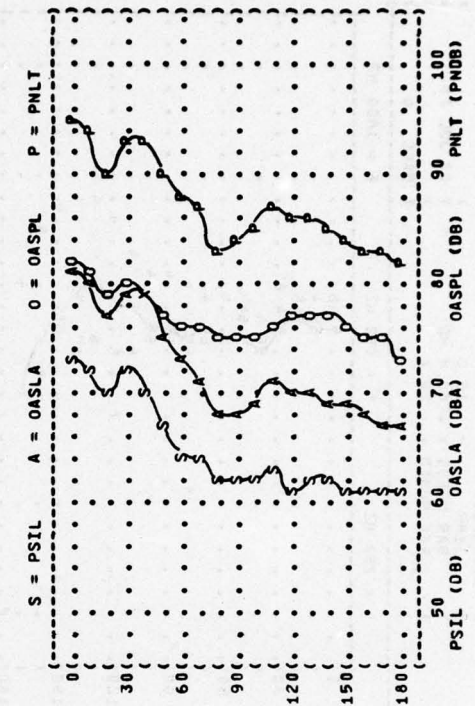
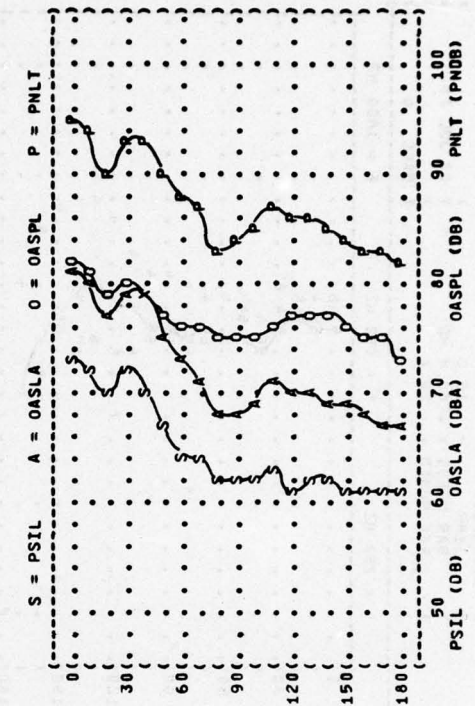
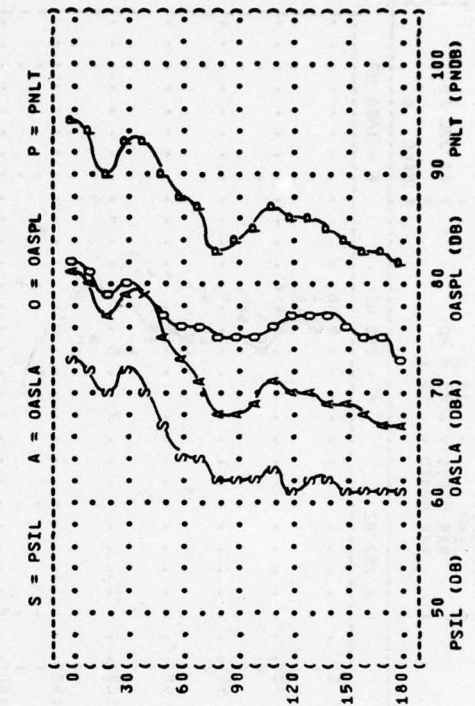
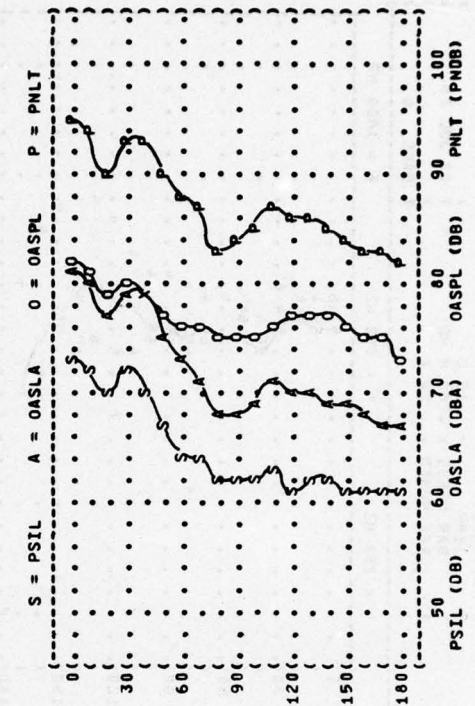
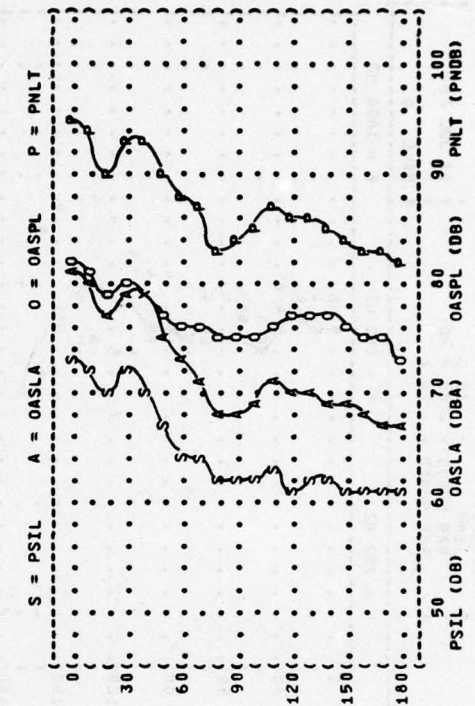
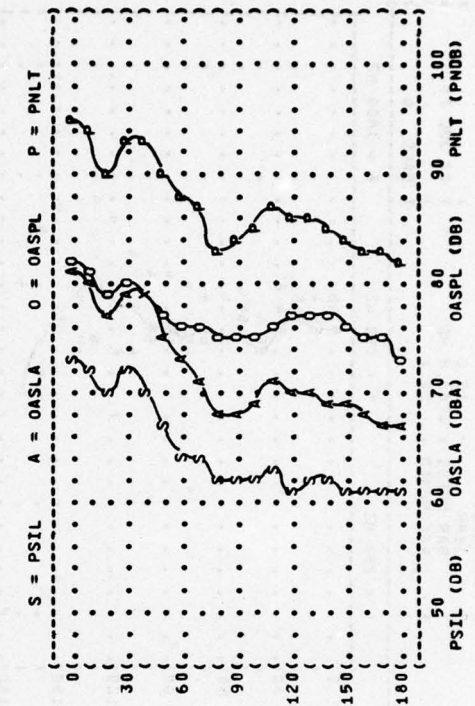
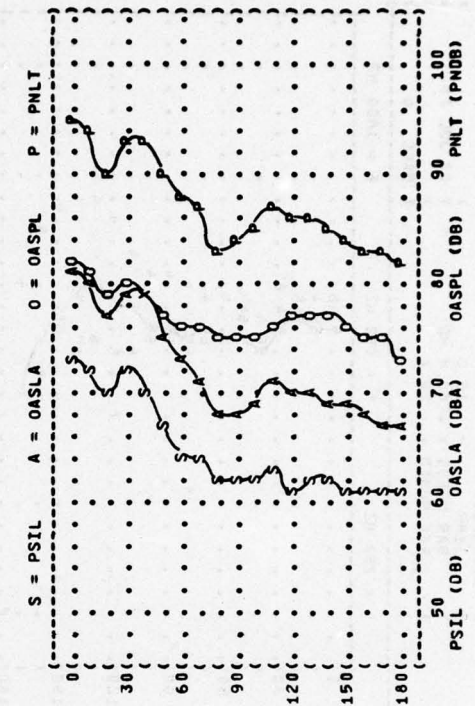
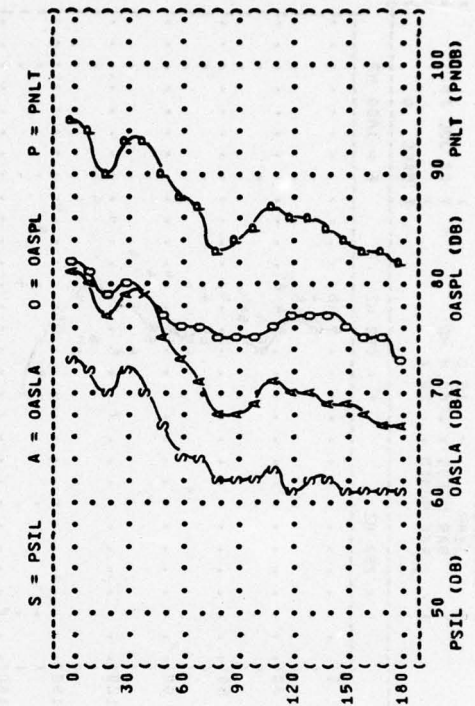
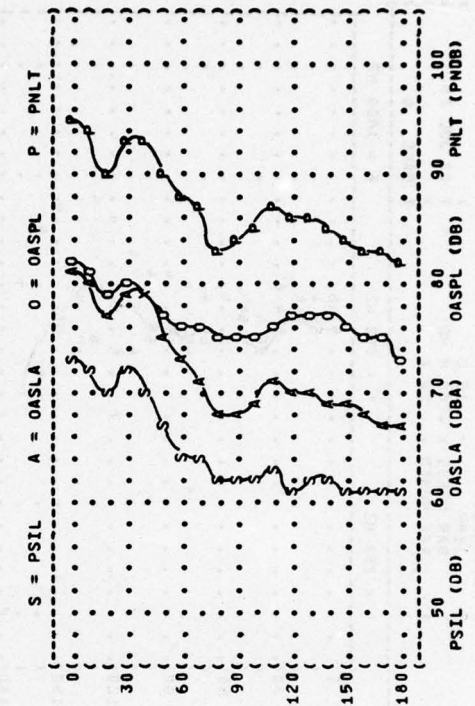
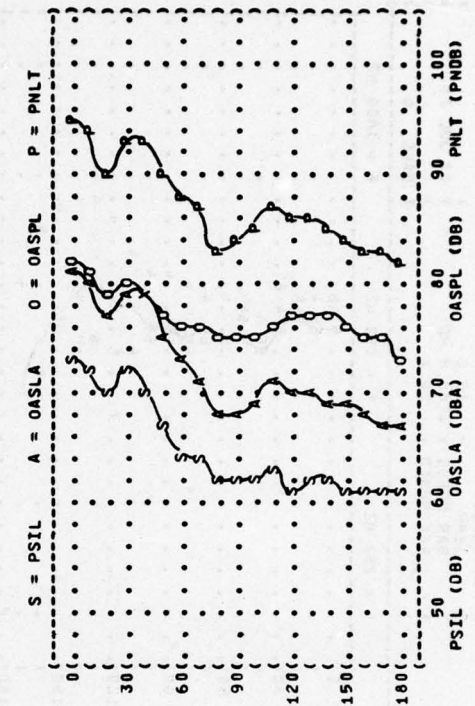
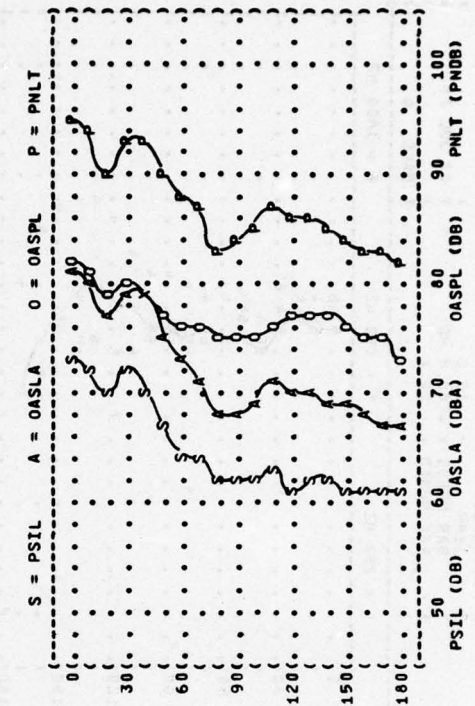
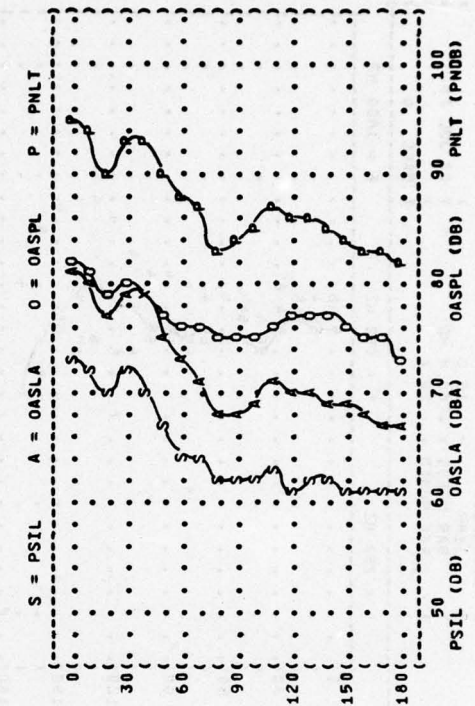
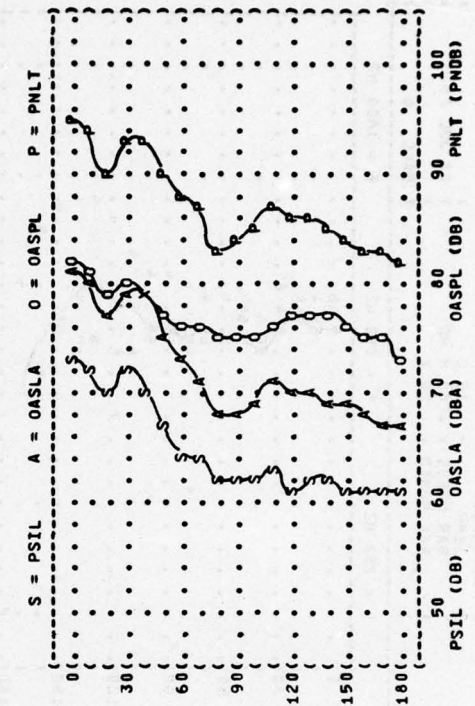
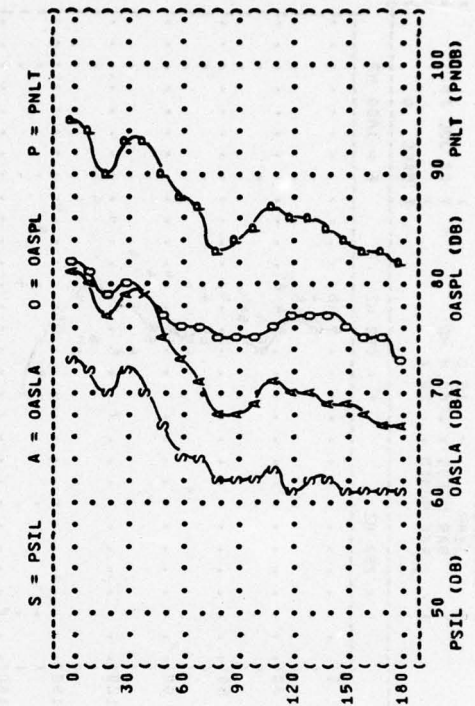
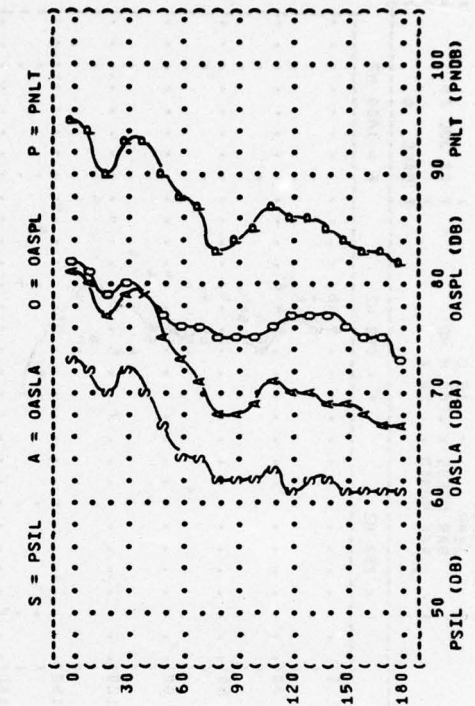
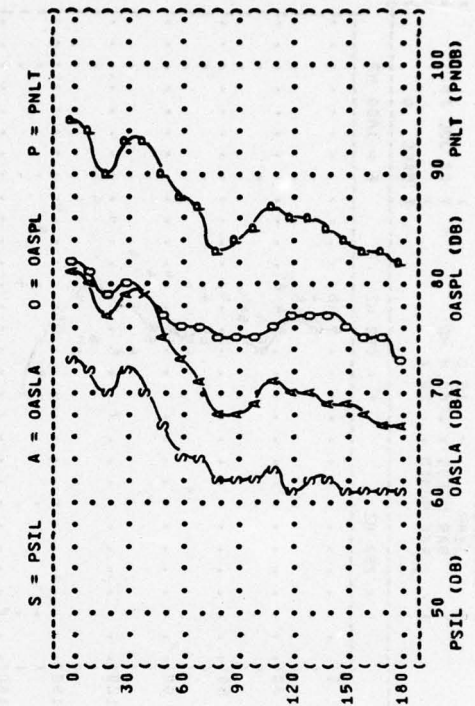
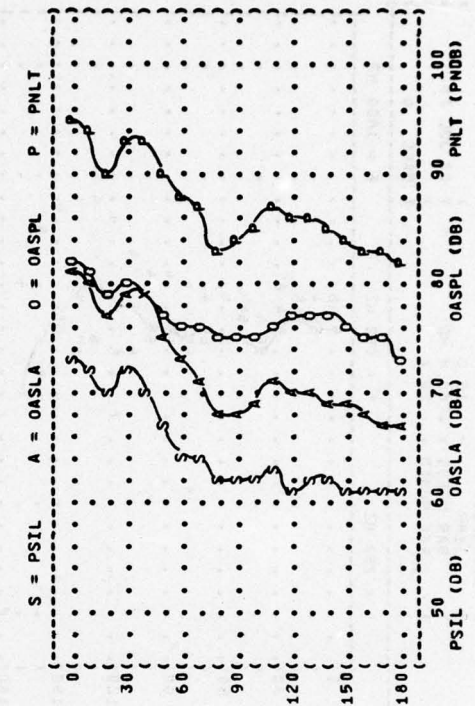
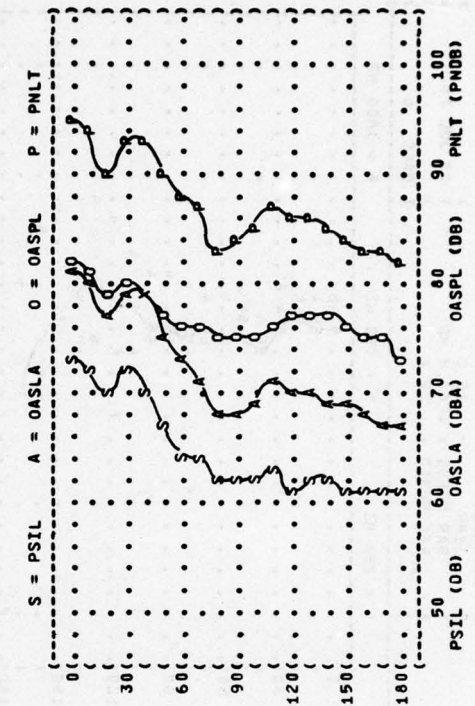
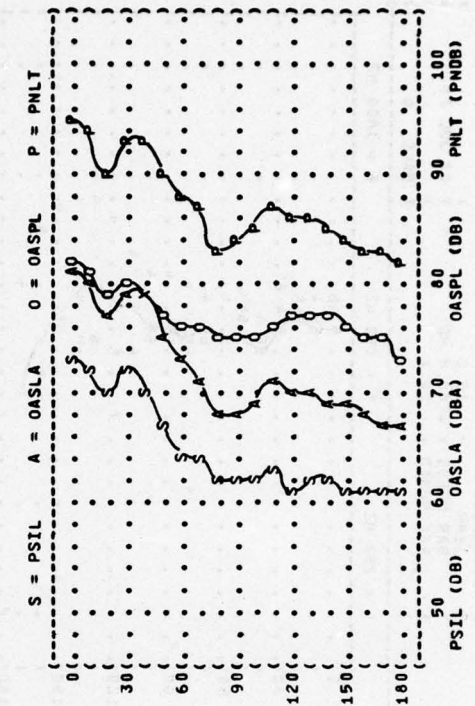
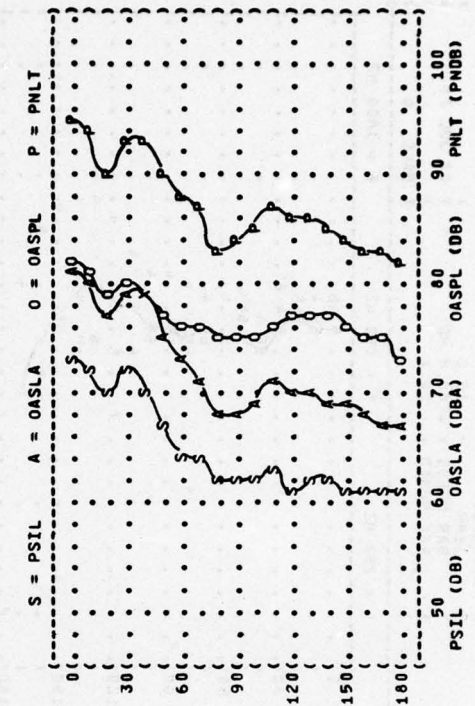
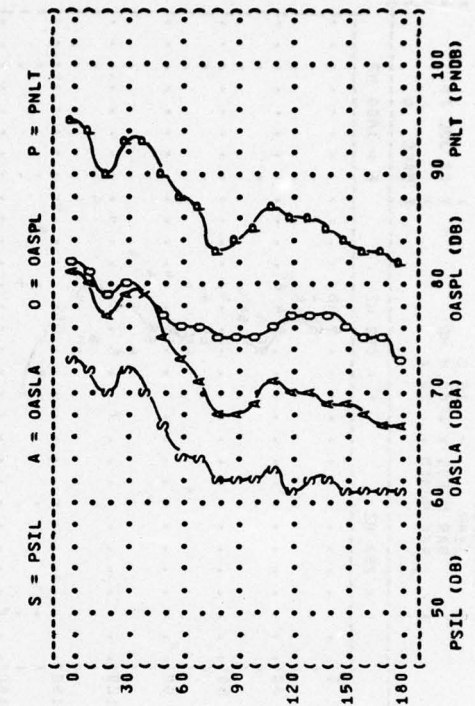
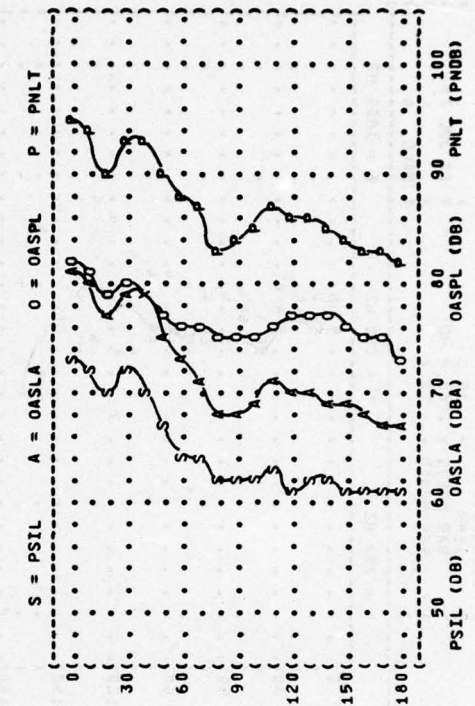
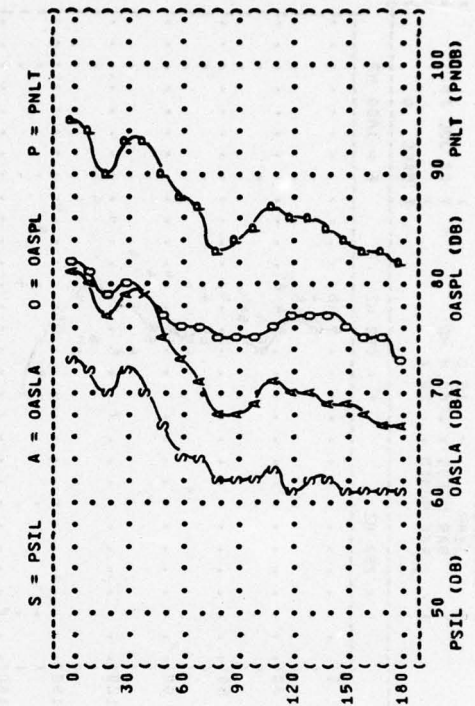
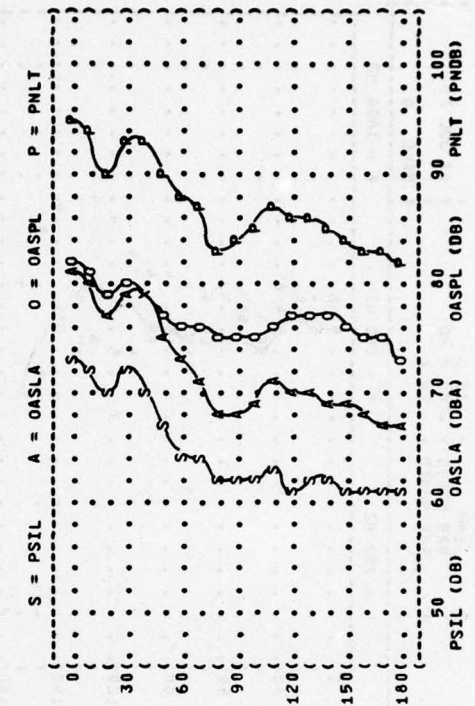
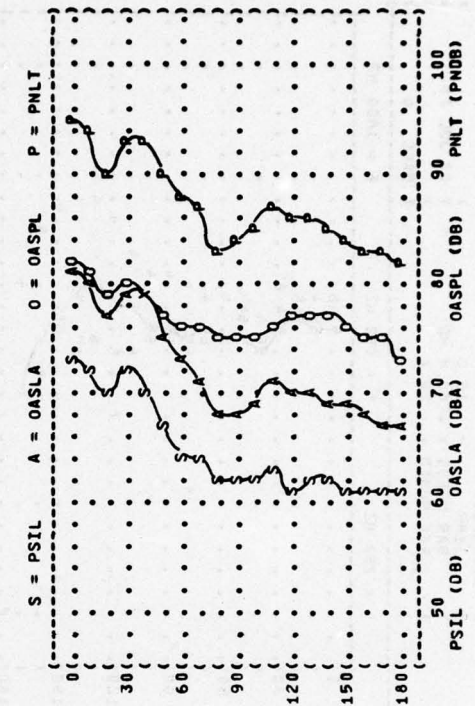
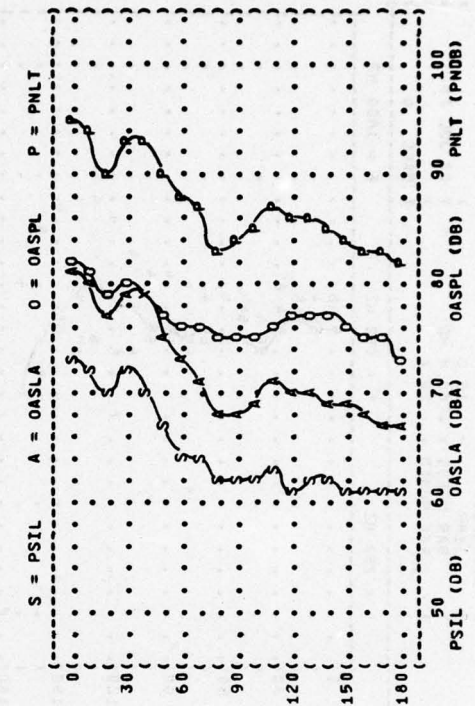
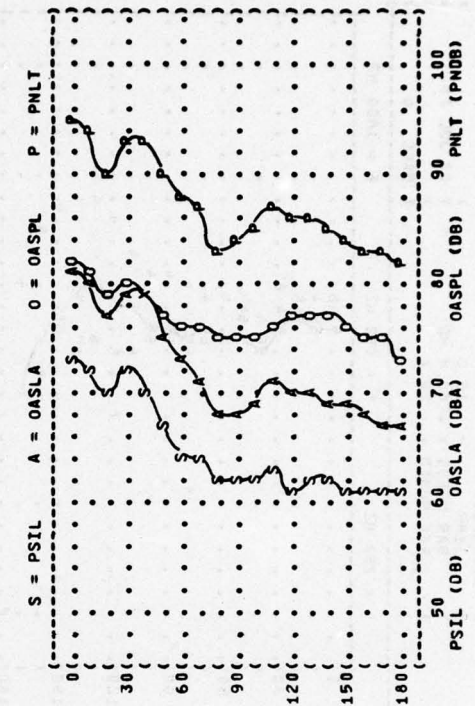
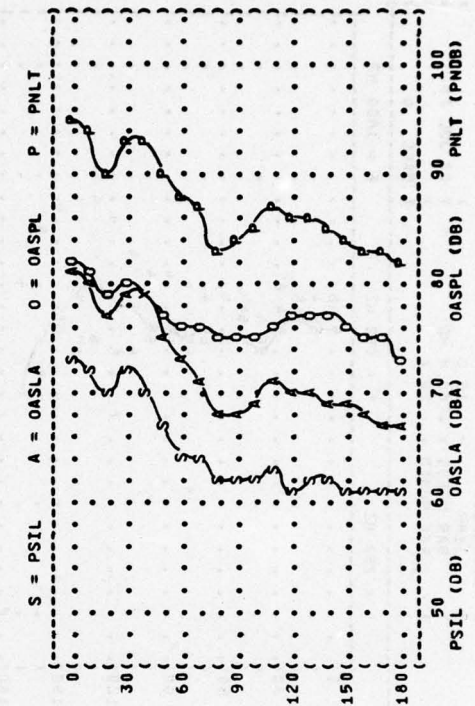
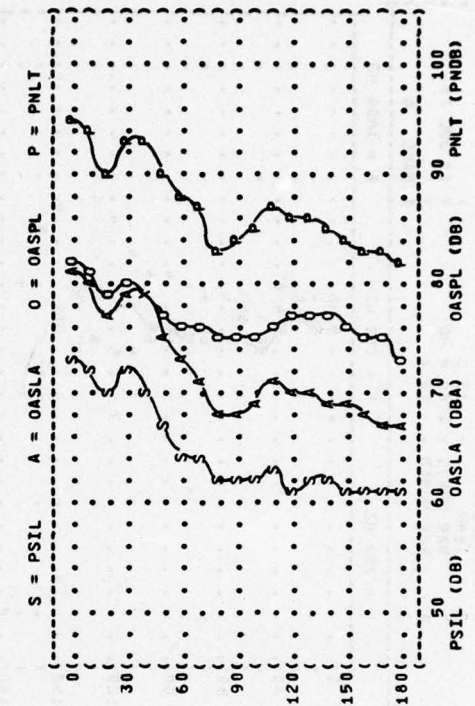
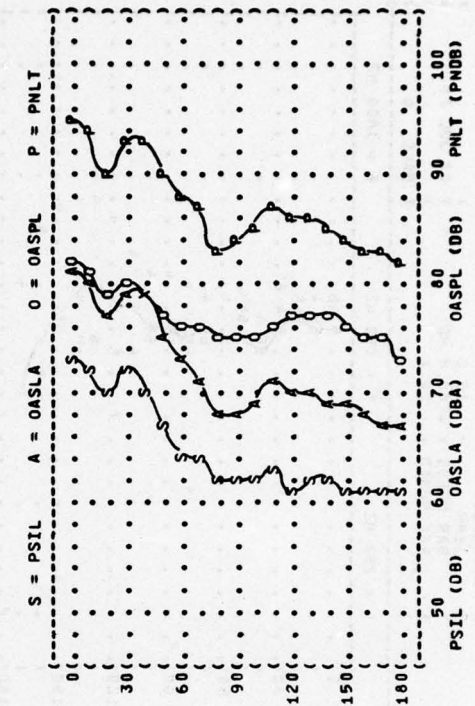
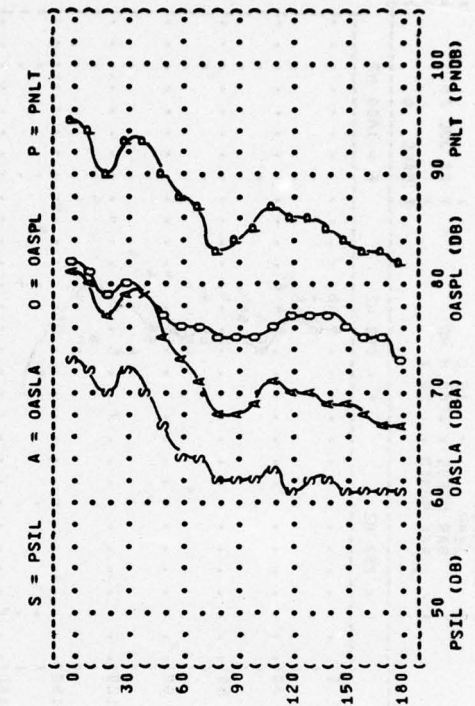
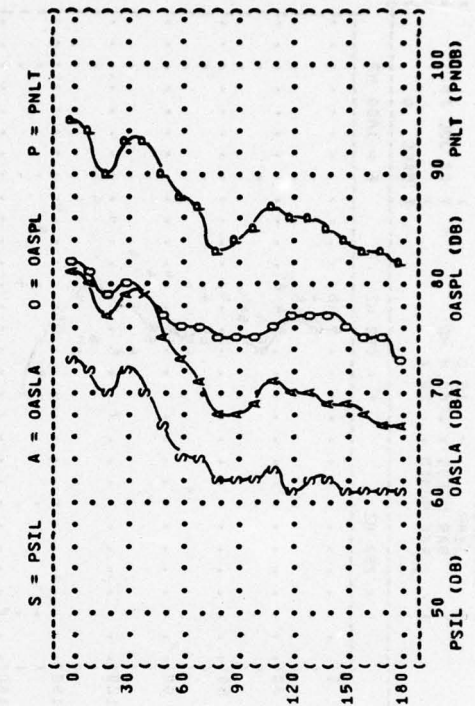
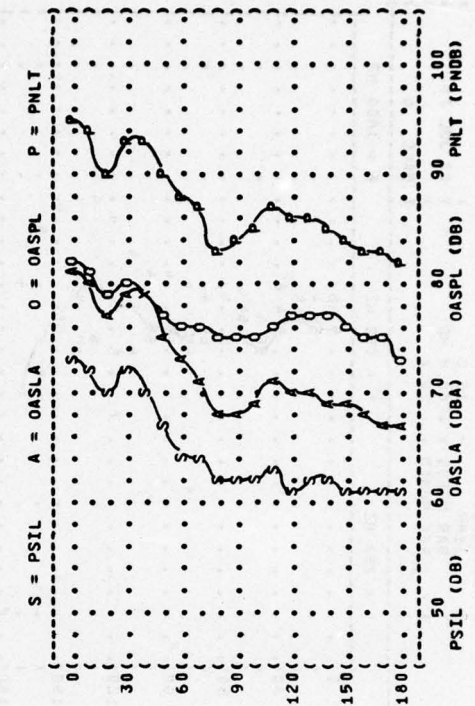
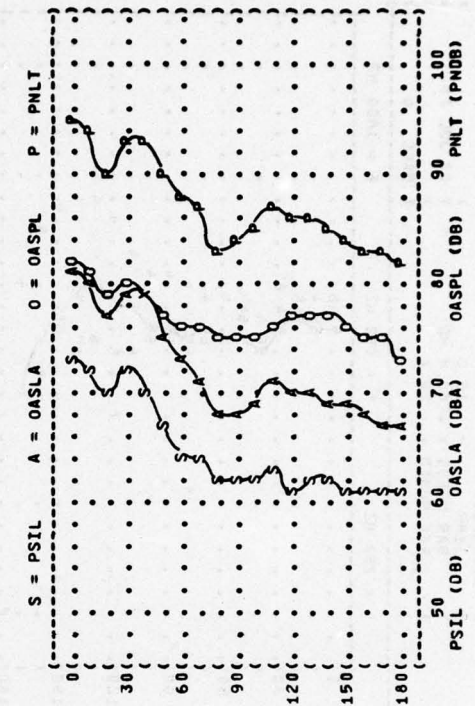
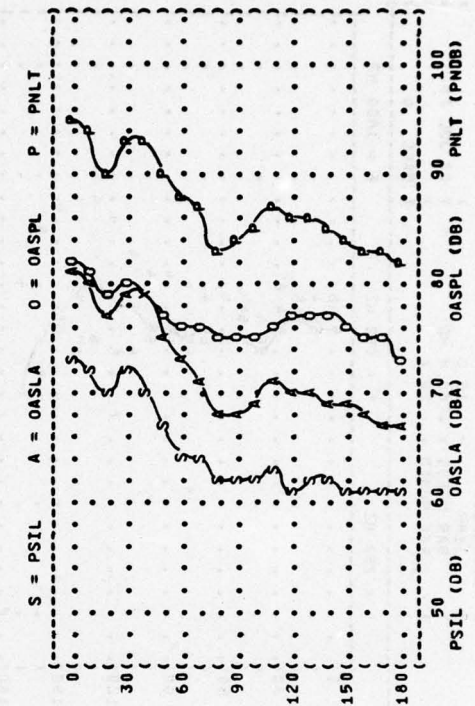
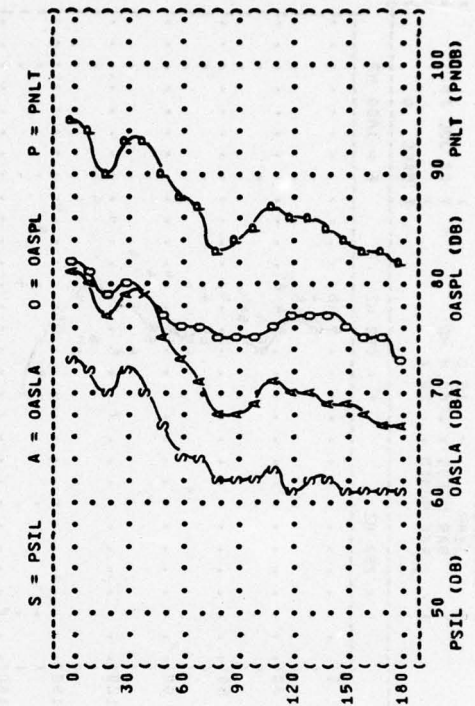
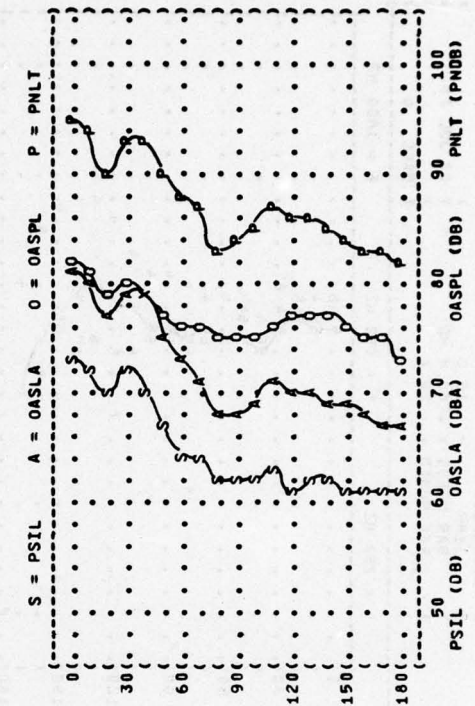
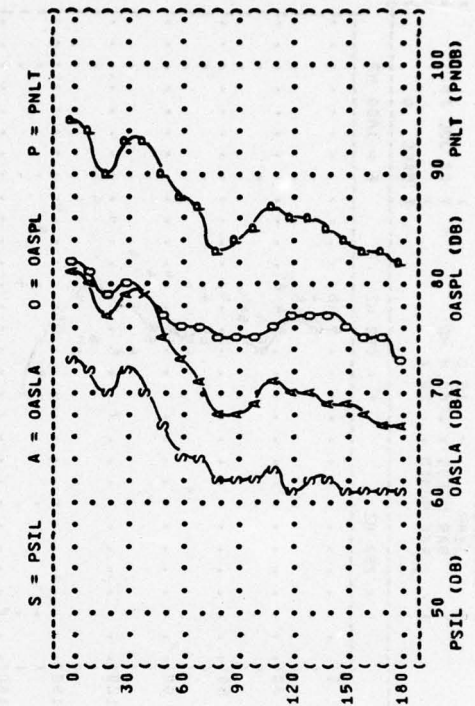
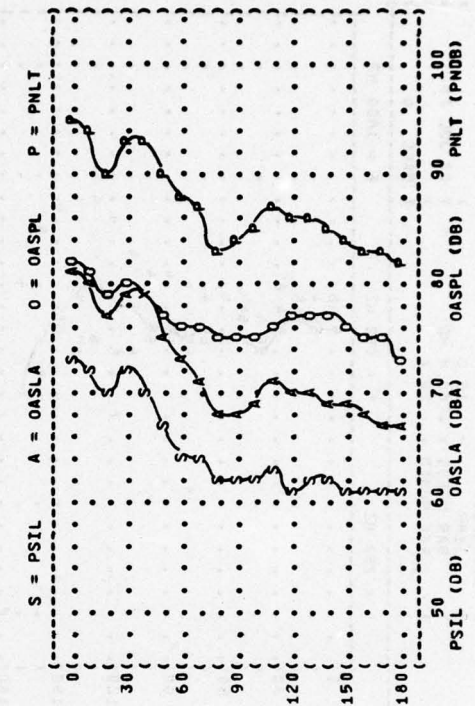
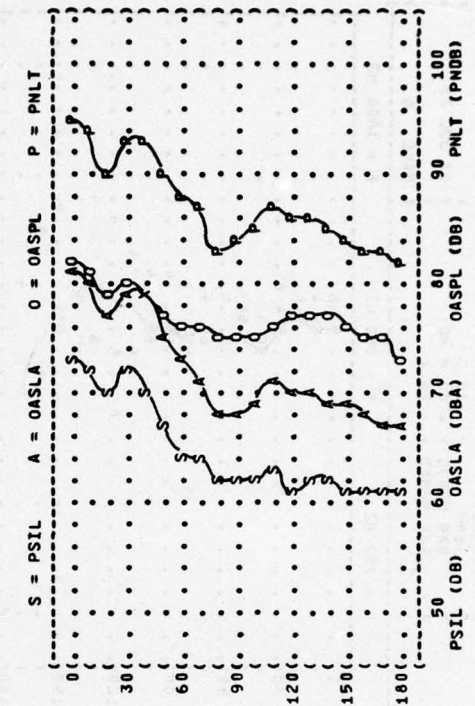
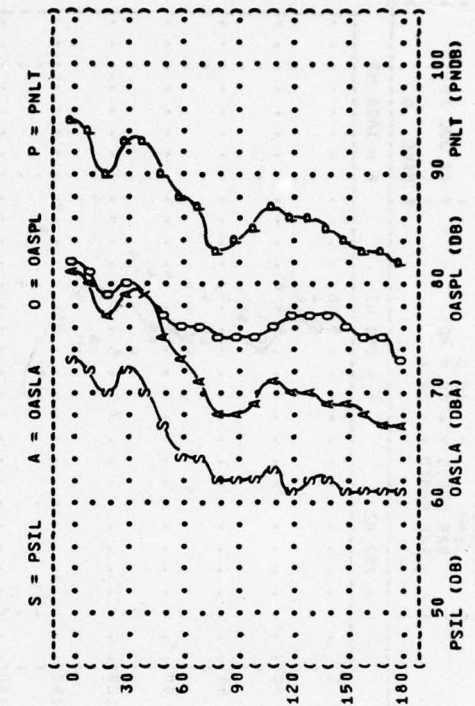
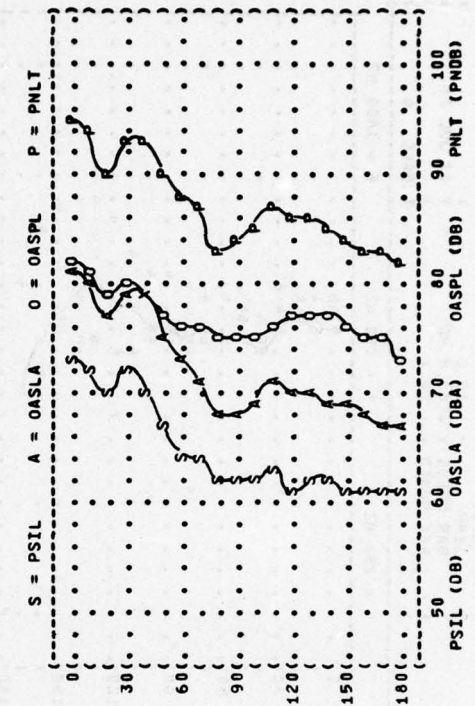
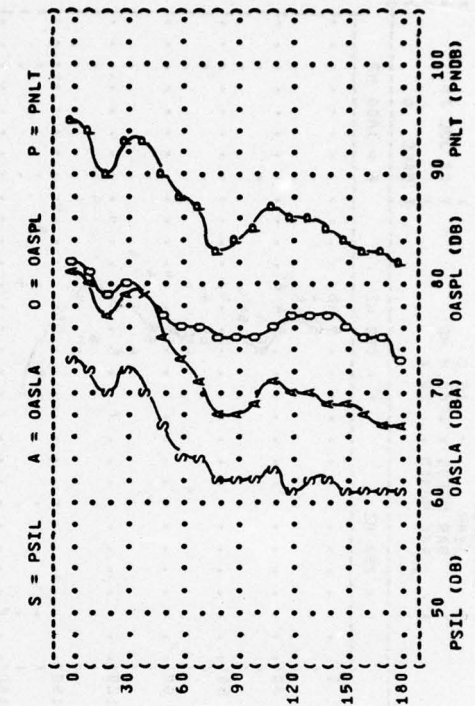
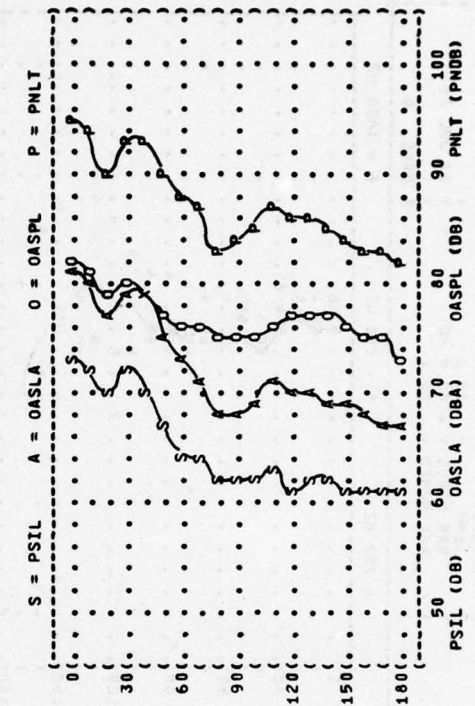
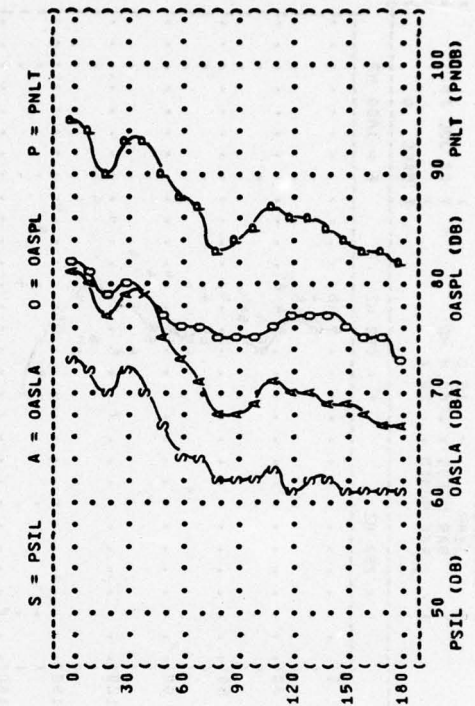
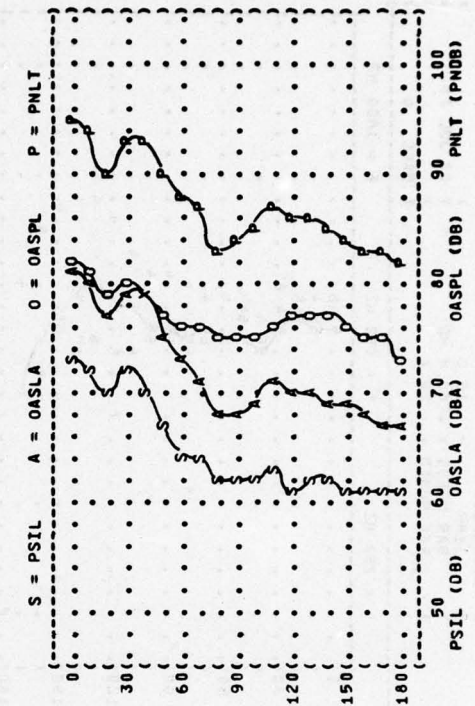
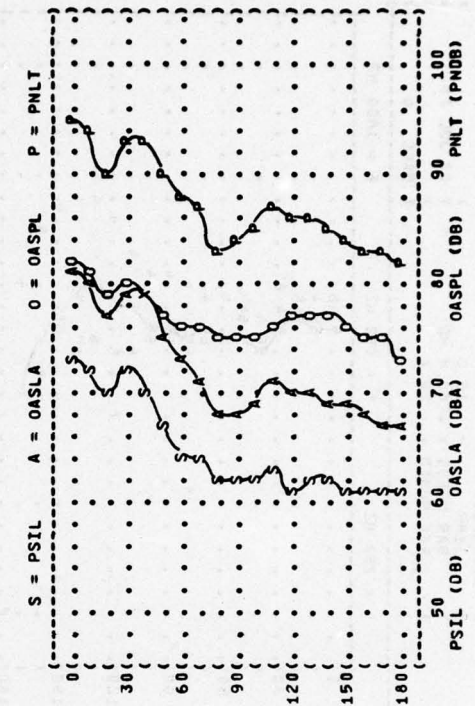
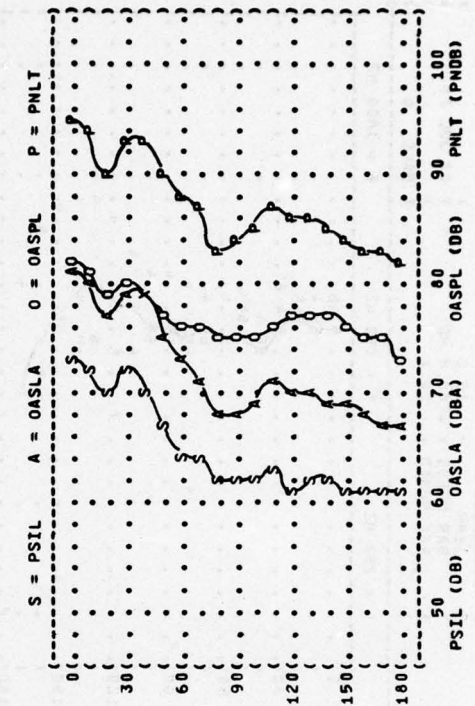
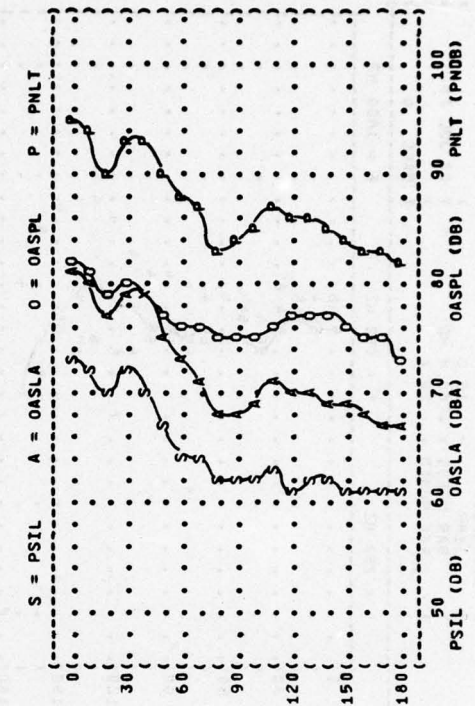
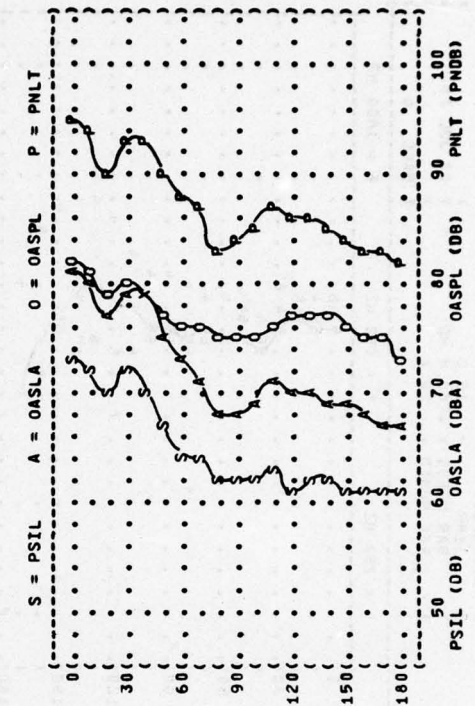
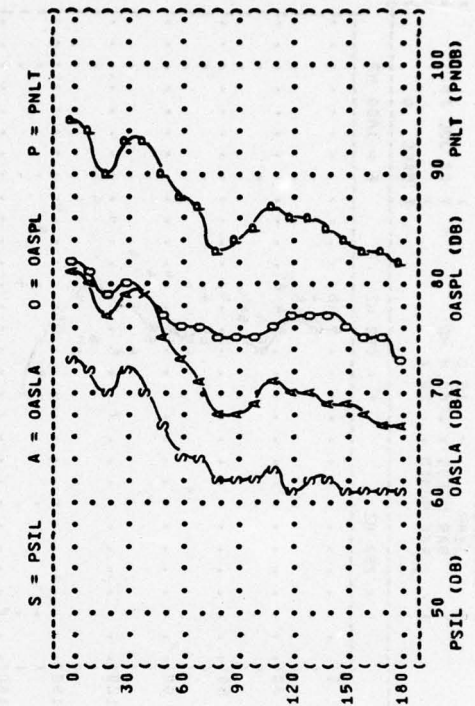
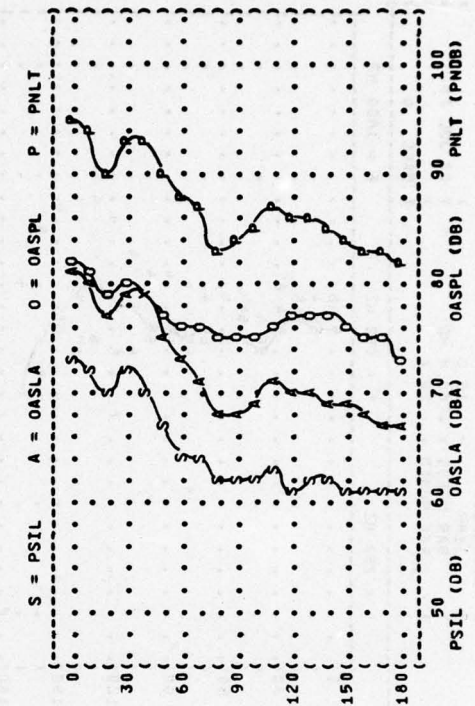
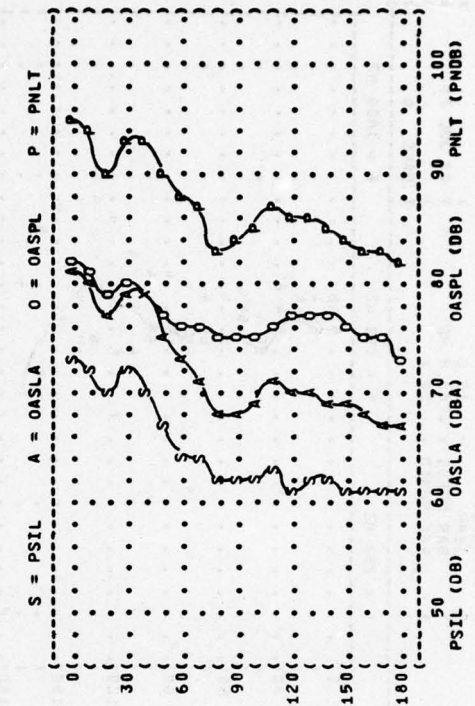
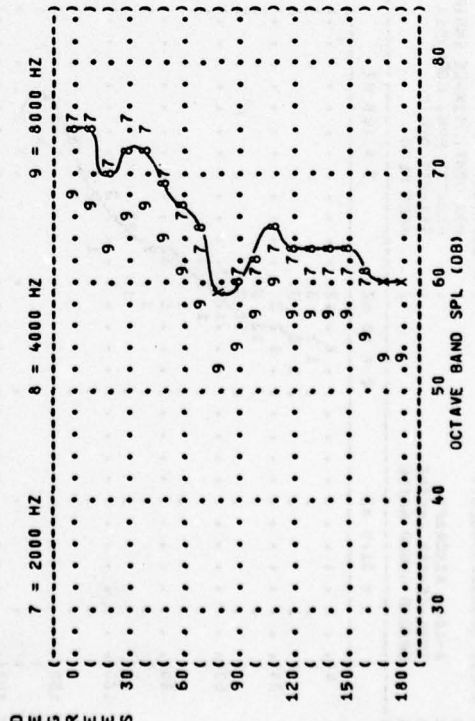
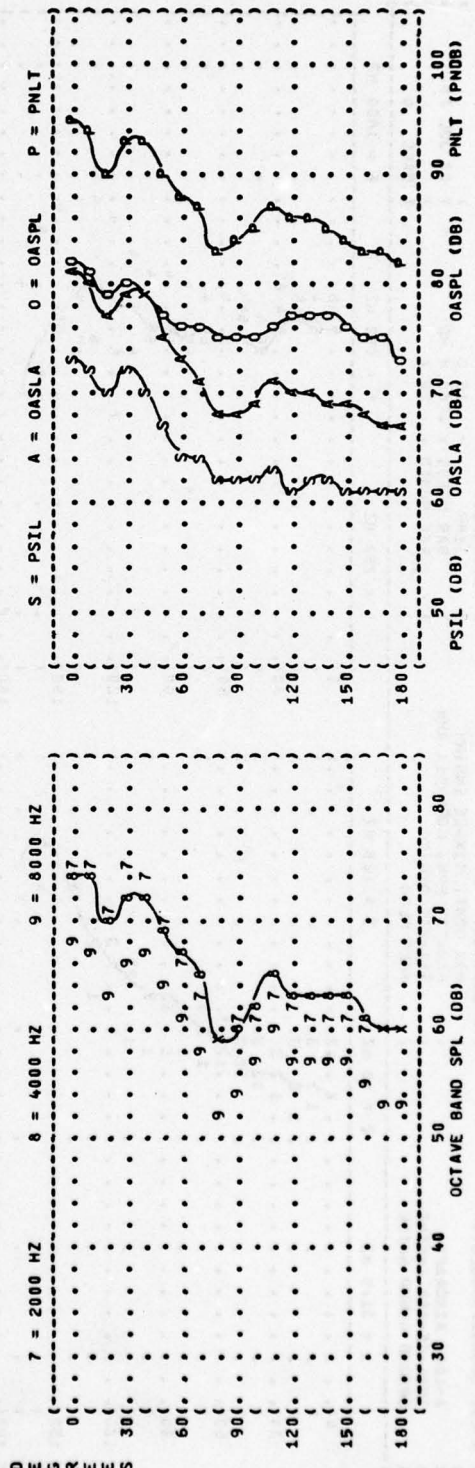
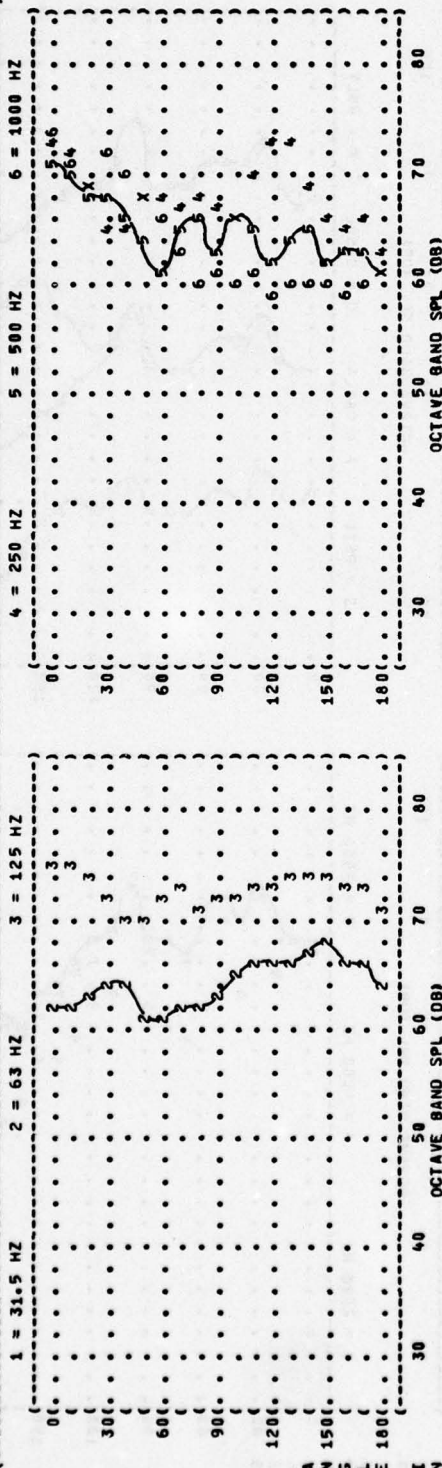


FIGURE 1 NORMALIZED FARFIELD NOISE LEVELS

3 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:

A-10A AIRCRAFT

TF34-GE-100 ENGINE

GROUND RUNUP NOISE

OPERATION:

MAX CONT. SINGLE ENGINE

FAN=77% RPM, CORE=91% RPM

ITT=731 DEG C

FREE FLOW

METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

IDENTIFICATION:

OMEGA 1.4

TEST 75-002-058

RUN 02

07 JUL 75

PAGE 6

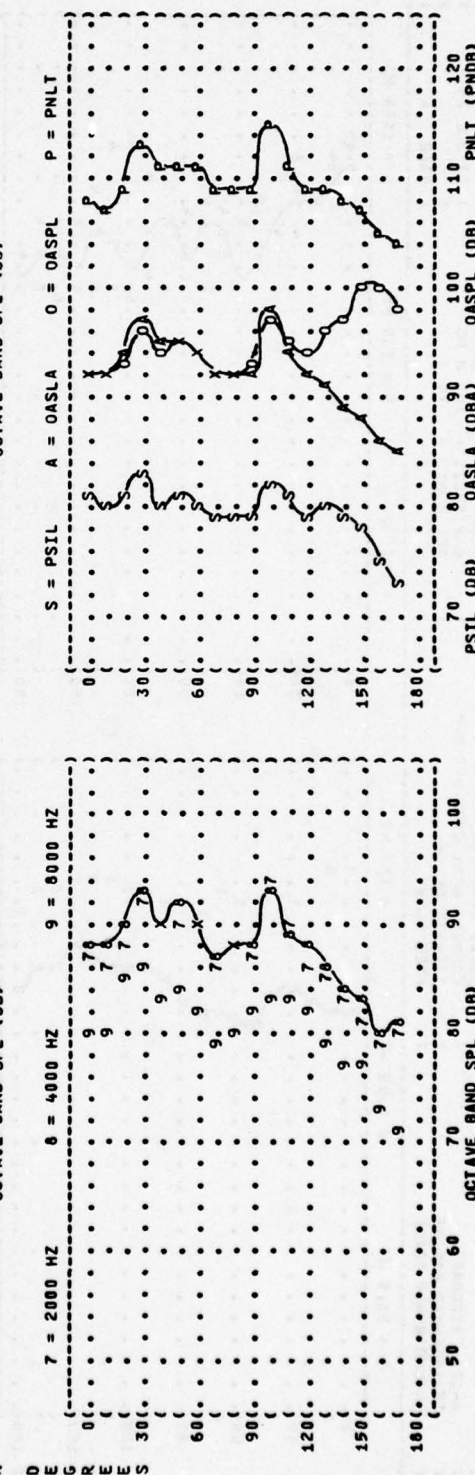
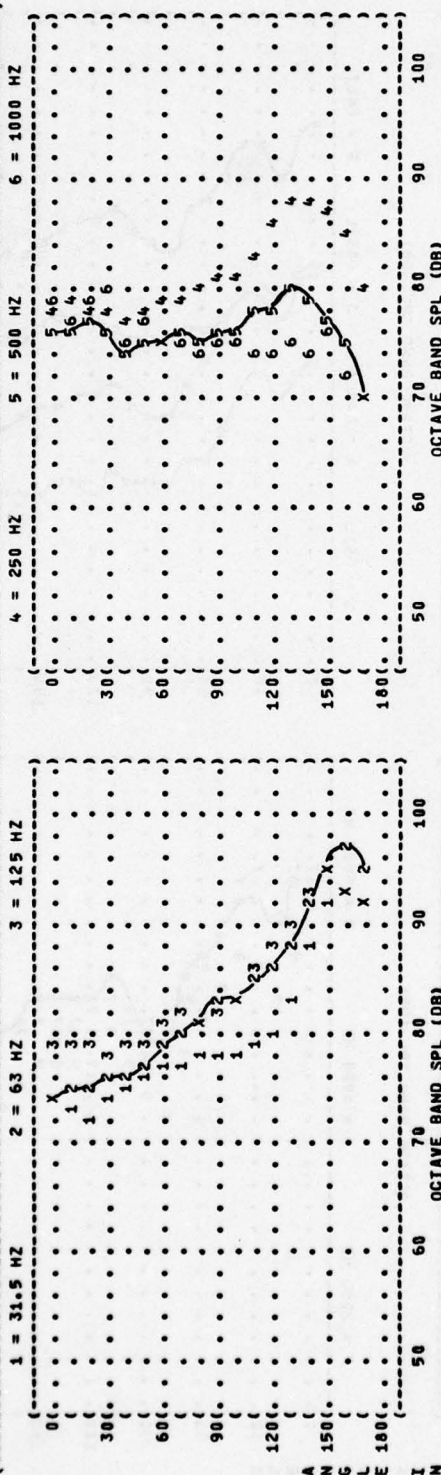


FIGURE 1 NORMALIZED FARFIELD NOISE LEVELS

3 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:

A-10A AIRCRAFT
 TF34-GE-100 ENGINE
 GROUND RUNUP NOISE

OPERATION:

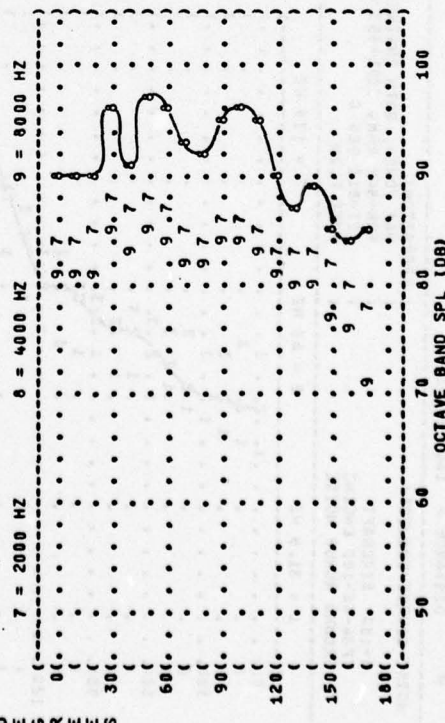
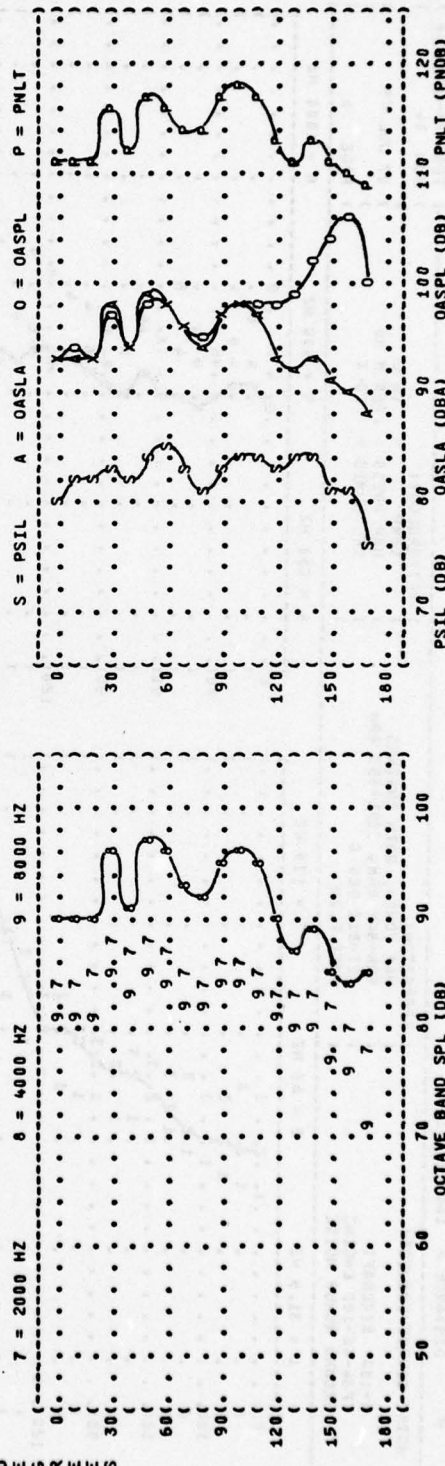
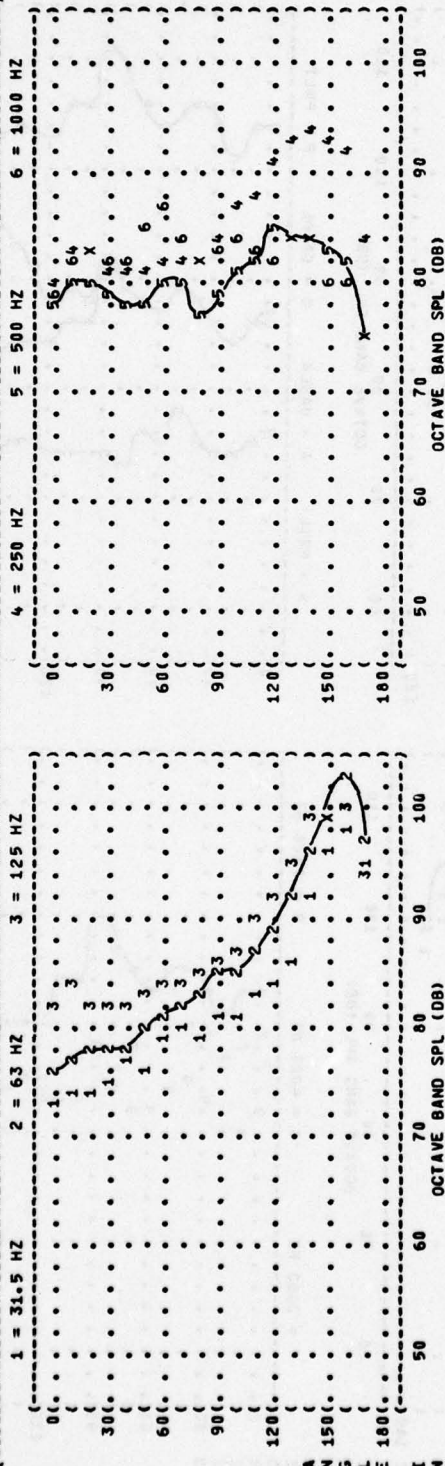
MAX POWER, SINGLE ENGINE
 FAN=84% RPM, CORE=95% RPM
 ITT=810 DEG C
 FREE FLOW

METEOROLOGY:

TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %

IDENTIFICATION:

OMEGA 1.4
 TEST 75-002-050
 RUN 03
 07 JUL 75
 PAGE 6



((FIGURE 1 NORMALIZED FARFIELD NOISE LEVELS
 ((**3** DISTANCE = 100 METERS
 ((NOISE SOURCE/SUBJECT: ((OPERATION:
 ((A-10A AIRCRAFT ((MAX POWER, BOTH ENGINES
 ((TF34-GE-100 ENGINE ((FAN=84% RPM, CORE=95% RPM
 ((GROUND RUNUP NOISE ((ITT=810 DEG C
 ((((FREE FLOW
 ((METEOROLOGY: = 15 C
 ((TEMP
 ((BAR PRESS = .760 M HG
 ((REL HUMID = 70 %
 ((PAGE 6
 ((IDENTIFICATION:
 ((OMEGA 1.4
 ((TEST 75-002-058
 ((RUN 04
 ((07 JUL 75
 ((6 = 1000 HZ
 ((5 = 500 HZ
 ((4 = 250 HZ
 ((3 = 125 HZ
 ((2 = 63 HZ
 ((1 = 31.5 HZ

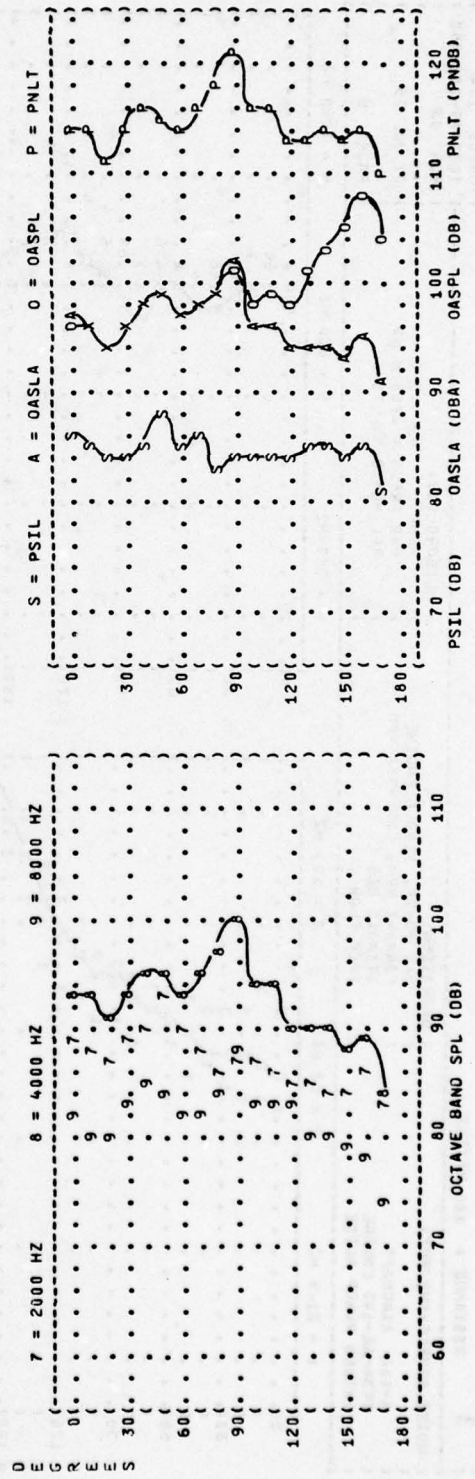
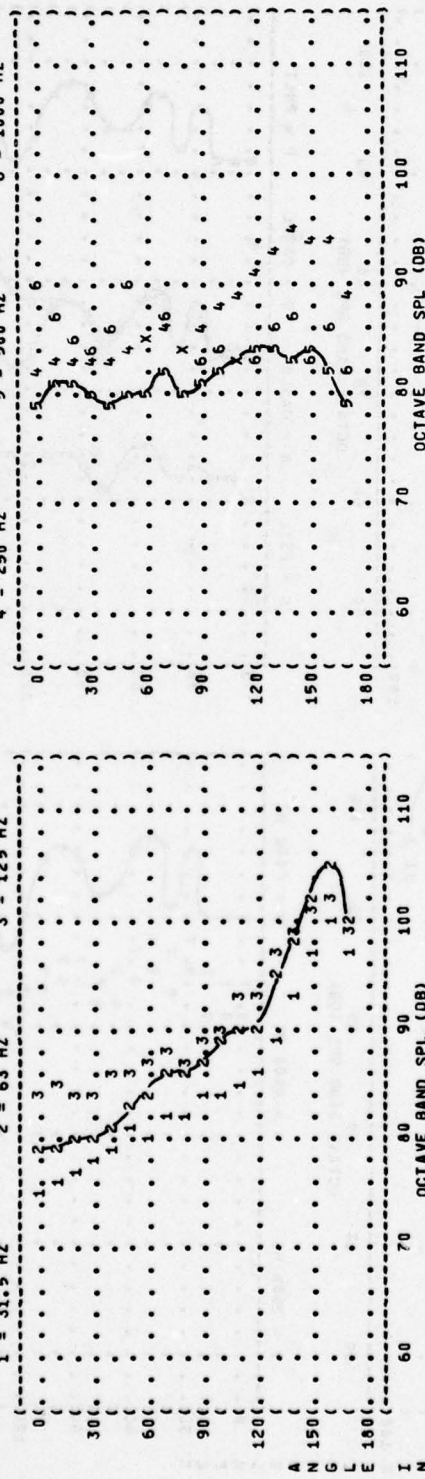


FIGURE: ACOUSTIC POWER LEVEL (PWL)		IDENTIFICATIONS:	
4		OMEGA 1.4	
		TEST 75-002-058	
		RUN 01	
NOISE SOURCE/SUBJECT:		METEOROLOGY:	
(OPERATION:		TEMP = 22 C	
(IDLE, BOTH ENGINES		BAR PRESS = .699 H HG	
(FAN=24% RPM, CORE=64% RPM		REL HUMID = 36 %	
(ITT=530 DEG C			
(FREE FLOW			
A-10A AIRCRAFT		07 JUL 75	
TF34-GE-100 ENGINE			
GROUND RUNUP NOISE		PAGE 3	

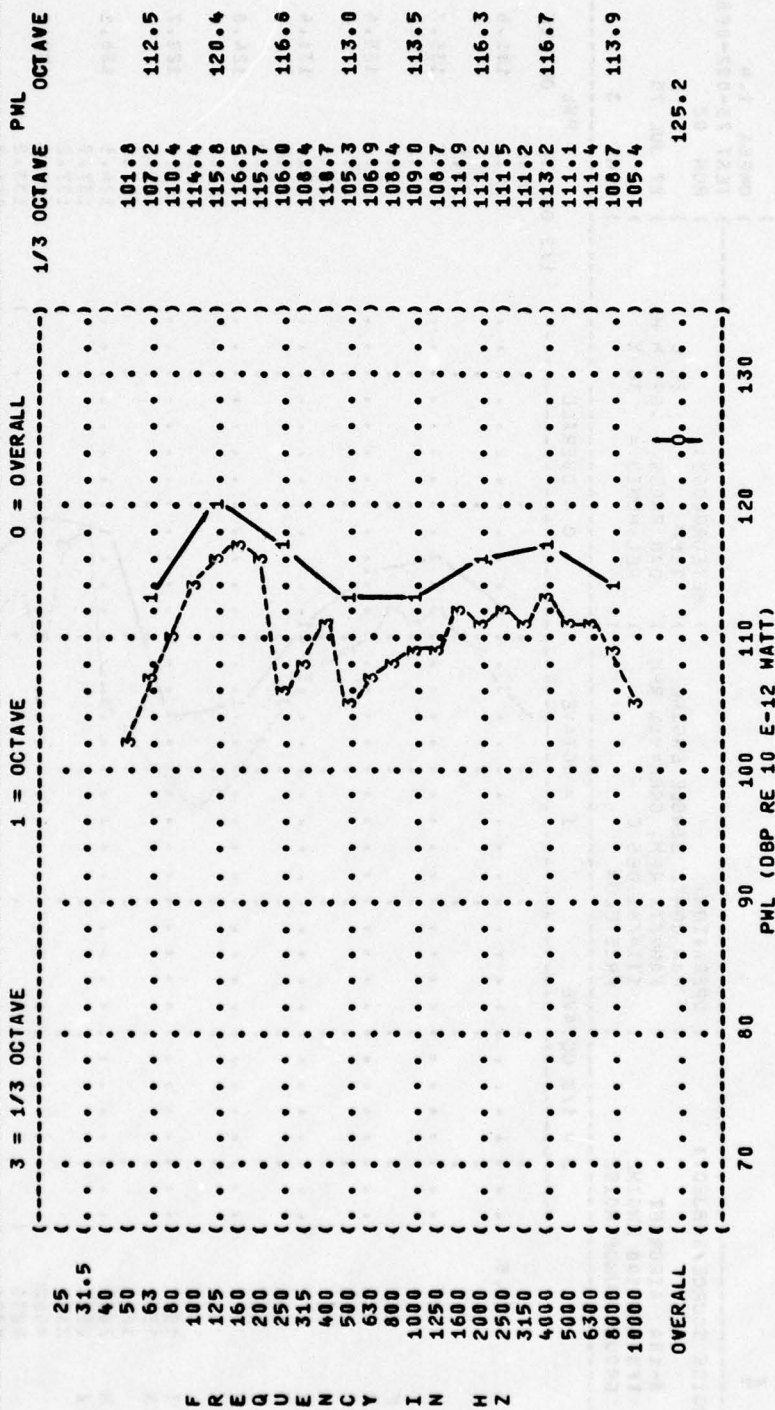


FIGURE: ACOUSTIC POWER LEVEL (PWL)

4

IDENTIFICATION:

OMEGA 1.4

TEST 75-002-058

RUN 02

07 JUL 75

PAGE 3

NOISE SOURCE/SUBJECT:

OPERATION:

MAX CONT. SINGLE ENGINE

FAN=77% RPM, CORE=91% RPM

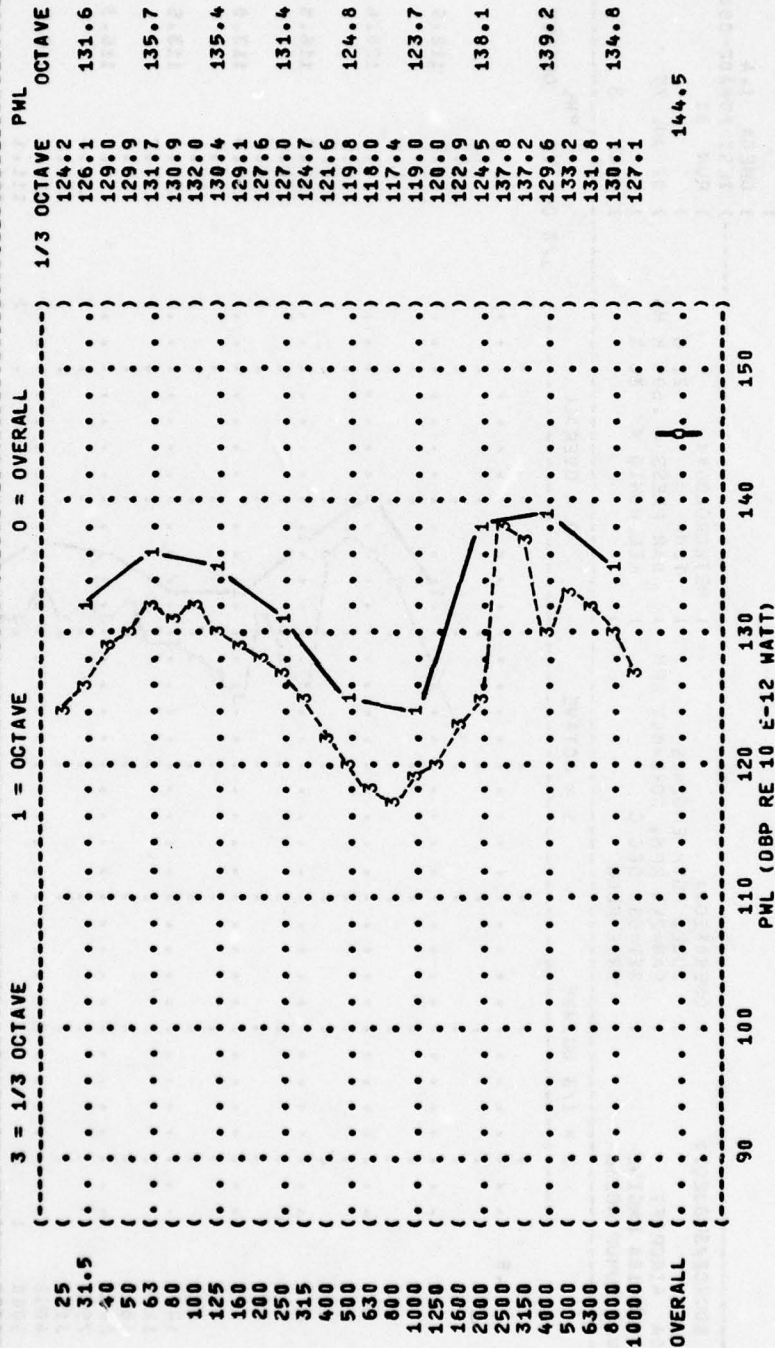
TEMP = 22 C

BAR PRESS = .699 M HG

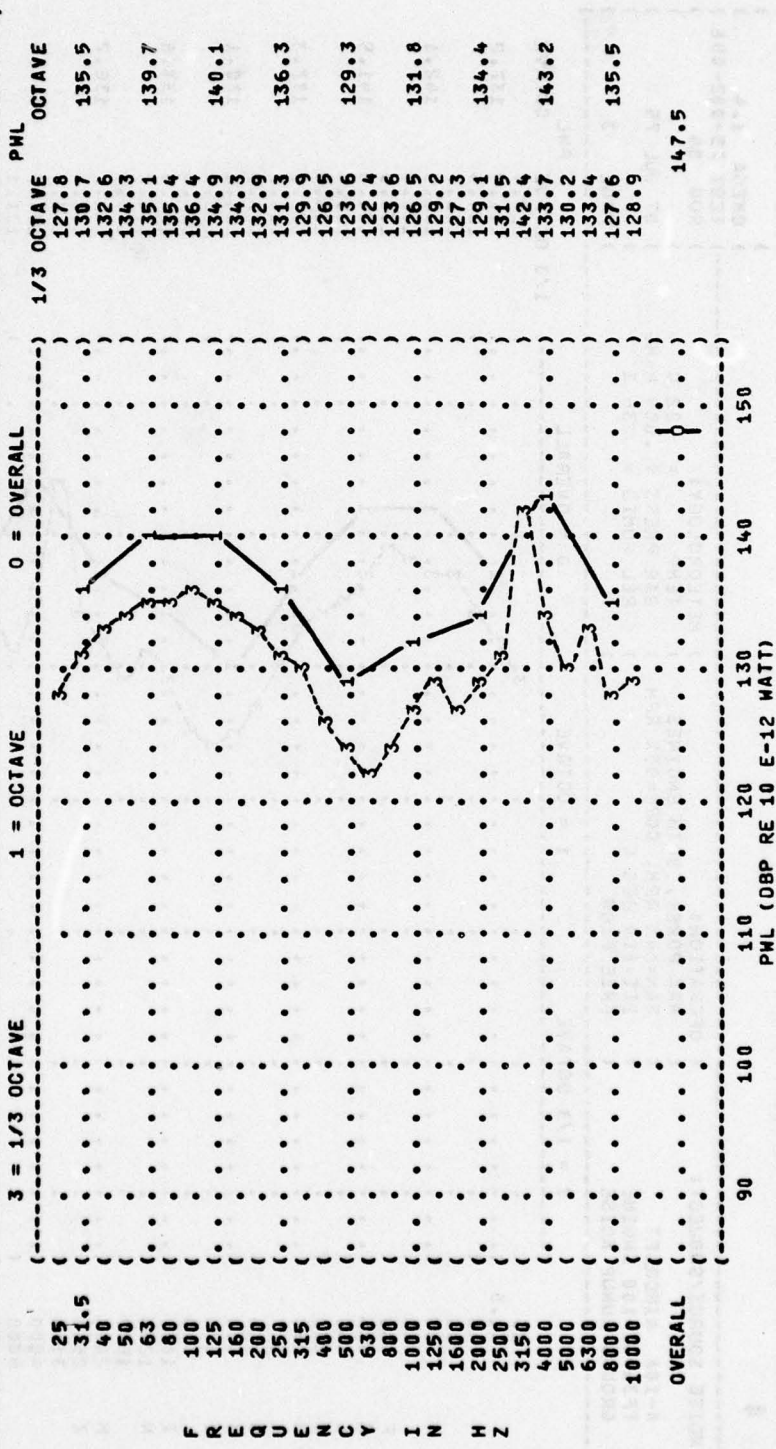
REL HUMID = 36 %

FREE FLOW

METEOROLOGY:



((FIGURE: ACOUSTIC POWER LEVEL (PWL)))
 ((4))
 ((NOISE SOURCE/SUBJECT:))
 ((A-10A AIRCRAFT))
 ((TF34-GE-100 ENGINE))
 ((GROUND RUNUP NOISE))
 ((OPERATIONS:))
 ((MAX POWER, SINGLE ENGINE))
 ((FAN=84% RPM, CORE=95% RPM))
 ((ITT=810 DEG C))
 ((FREE FLOW))
 ((METEOROLOGY:))
 ((TEMP = 22 C))
 ((BAR PRESS = .699 M HG))
 ((REL HUMID = 36 %))
 ((IDENTIFICATION:))
 ((OMEGA 1.4))
 ((TEST 75-002-058))
 ((RUN 03))
 ((07 JUL 75))
 ((PAGE 3))



((FIGURE: ACOUSTIC POWER LEVEL (PWL)))
 ((4))
 ((NOISE SOURCE/SUBJECT:))
 ((A-10A AIRCRAFT))
 ((TF34-GE-100 ENGINE))
 ((GROUND RUNUP NOISE))
 ((OPERATION:))
 ((MAX POWER, BOTH ENGINES))
 ((FAN=84% RPM, CORE=95% RPM))
 ((ITT=810 DEG C))
 ((FREE FLOW))
 ((METEOROLOGY:))
 ((TEMP = 22 C))
 ((BAR PRESS = .699 M HG))
 ((REL HUMID = 36 %))
 ((IDENTIFICATION:))
 ((OMEGA 1.4))
 ((TEST 75-002-058))
 ((RUN 04))
 ((07 JUL 75))
 ((PAGE 3))

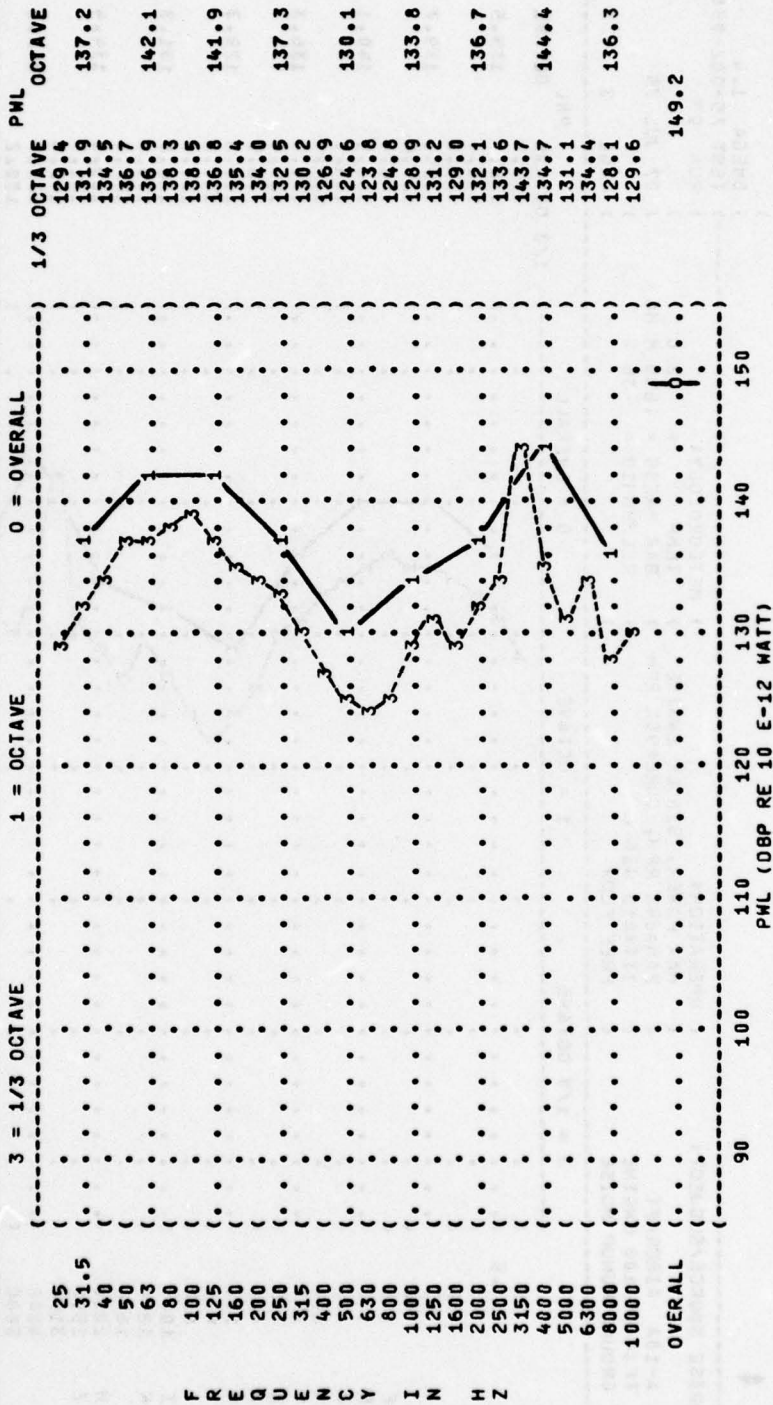


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IDENTIFICATION:																
OMEGA 1.4																
TEST 75-002-058																
RUN 01																
METEOROLOGY:																
TEMP = 22 C																
BAR PRESS = .699 M HG																
REL HUMID = 36 %																
PAGE 4																
NOISE SOURCE/SUBJECT:																
OPERATION:																
IDLE, BOTH ENGINES																
FAN=24% RPM, CORE=64% RPM																
ITT=530 DEG C																
FREE FLOW																
A-10A AIRCRAFT																
TF34-GE-100 ENGINE																
GROUND RUNUP NOISE																
FREQ (HZ)																
ANGLE (DEGREES)																
1/3 OCTAVE																
25																
31.5																
40																
50																
63																
80																
100																
125																
160																
200																
250																
315																
400																
500																
630																
800																
1000																
1250																
1600																
2000																
2500																
3150																
4000																
5000																
6300																
8000																
10000																
OCTAVE																
31.5																
63																
125																
250																
500																
1000																
2000																
4000																
8000																
OVERALL																

TABLE: DIRECTIVITY INDEX (DB)																
IDENTIFICATION:																
6																
NOISE SOURCE/SUBJECT:																
A-10A AIRCRAFT																
TF34-GE-100 ENGINE																
GROUND RUNUP NOISE																
METEOROLOGY:																
TEMP = 22 C																
BAR PRESS = 0.699 M HG																
REL HUMID = 36 %																
PAGE 4																
FREQ (HZ)																
ANGLE (DEGREES)																
1/3 OCTAVE																
25																
31.5																
40																
50																
63																
80																
100																
125																
160																
200																
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1250																
1600																
2000																
2500																
3150																
4000																
5000																
6300																
8000																
10000																
OCTAVE																
31.5																
63																
125																
250																
500																
1000																
2000																
4000																
8000																
OVERALL																

TABLE: DIRECTIVITY INDEX (DB)																			
6																			
NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY: TEMP = 22 C BAR PRESS = .699 M HG																			
A-10A AIRCRAFT (FAN=84% RPM, CORE=95% RPM)																			
TF34-GE-100 ENGINE (ITT=810 DEG C) REL HUMID = 36 %																			
GROUND RUNUP NOISE (FREE FLOW)																			
FREQ	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
(HZ)																			
ANGLE (DEGREES)																			
1/3 OCTAVE																			
25	-13	-13	-12	-12	-8	-9	-6	-4	-6	-7	-6	-5	-3	-1	4	7	9	8	
31.5	-14	-13	-12	-13	-11	-12	-9	-8	-10	-7	-6	-7	-4	-2	4	4	9	10	8
40	-16	-15	-15	-13	-11	-13	-10	-10	-9	-7	-7	-7	-4	-2	4	4	8	11	7
50	-16	-17	-15	-13	-11	-13	-12	-12	-11	-9	-7	-6	-4	-1	3	7	11	11	7
63	-16	-14	-16	-15	-14	-11	-11	-10	-8	-7	-7	-5	-2	-2	5	7	11	11	4
80	-16	-14	-13	-13	-13	-11	-10	-8	-8	-6	-6	-4	-3	1	4	7	11	11	4
100	-13	-12	-11	-12	-9	-9	-8	-8	-8	-6	-5	-3	-2	1	6	6	10	3	
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10000	-1	-1	-4	1	0	2	2	-1	-1	2	2	2	-1	-2	-4	-7	-8	-13	
OCTAVE																			
31.5	-15	-14	-13	-13	-11	-12	-9	-8	-8	-7	-7	-5	-4	-2	4	8	10	7	
63	-16	-15	-14	-14	-14	-12	-11	-10	-9	-7	-7	-5	-3	-0	4	7	11	5	
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6000	-1	-2	-2	2	0	2	1	-0	-0	1	2	0	-1	-3	-3	-6	-7	-12	
OVERALL																			
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TABLE: DIRECTIVITY INDEX (DB)																
6																
IDENTIFICATION:																
OMEGA 1.4																
TEST 75-002-058																
RUN 04																
07 JUL 75																
PAGE 4																
NOISE SOURCE/SUBJECT:																
A-10A AIRCRAFT																
TF34-GE-100 ENGINE																
GROUND RUNUP NOISE																
OPERATION:																
MAX POWER, BOTH ENGINES																
FAN=84% RPM, CORE=95% RPM																
ITT=810 DEG C																
FREE FLOW																
METEOROLOGY:																
TEMP = 22 C																
BAR PRESS = .699 M HG																
REL HUMID = 36 %																
FREQ	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150
(HZ)																
ANGLE (DEGREES)																
1/3 OCTAVE																
25	-12	-9	-10	-9	-11	-5	-6	-7	-5	-4	-5	-3	-3	-0	3	7
31.5	-14	-15	-13	-11	-9	-9	-10	-8	-8	-6	-4	-3	-3	-0	4	7
40	-16	-14	-14	-12	-11	-11	-11	-7	-7	-6	-6	-6	-4	-1	4	7
50	-16	-16	-14	-15	-14	-12	-12	-9	-8	-8	-5	-4	-4	1	3	9
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1250	6	2	-1	0	1	5	1	2	-2	-3	-1	-4	-3	0	0	0
1600	3	1	-0	1	3	2	2	0	-1	-1	-1	-2	-2	-1	-2	-2
2000	-0	-2	-2	0	3	6	4	-1	-4	-4	-1	-2	-4	-5	-4	-4
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5000	2	-0	0	3	4	4	1	0	-3	0	-2	-2	-2	-3	-5	-8
6300	-2	-3	-3	-0	1	1	-1	-1	1	5	-0	-0	-0	-4	-4	-4
8000	1	-2	-2	1	3	3	-0	-0	-0	1	-0	0	0	-3	-3	-5
10000	-1	-4	-4	-1	0	-0	-2	-1	1	4	0	0	2	-1	-3	-7
OCTAVE																
31.5	-15	-13	-13	-11	-11	-9	-9	-7	-7	-6	-5	-4	-4	-1	4	7
63	-16	-15	-14	-14	-13	-11	-10	-8	-8	-8	-6	-5	-4	0	4	7
125	-10	-9	-10	-8	-8	-8	-5	-6	-7	-5	-4	-1	-1	3	5	7
250	-7	-6	-7	-6	-6	-6	-5	-3	-5	-3	-2	-0	1	4	5	5
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2000	1	-0	-1	1	2	5	2	0	-2	-1	-1	-2	-3	-3	-5	-4
4000	-2	-2	-4	-1	0	-0	-1	0	3	5	-1	-1	-5	-5	-7	-6
8000	-1	-3	-3	-0	1	1	-1	-1	0	5	-0	-0	-4	-4	-4	-6
OVERALL	-4	-5	-6	-4	-3	-2	-4	-3	-2	1	-3	-2	-2	0	3	5
																4

EQUAL LEVEL CONTOURS (DB)

OMEGA 1.4

A-10A AIRCRAFT

TF34-GE-100 ENGINE
GROUND RUNUP NOISE

IDLE, BOTH ENGINES

FAN=24% RPM, CORE=64% RPM

ITT=530 DI
FREE FLOW

TEMP

BAR

REL HUMID = 70 %

OMEGA 1.4

TEST 75-002-058

RUN 01

07 JUL 75

PAGE 13

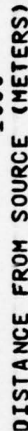


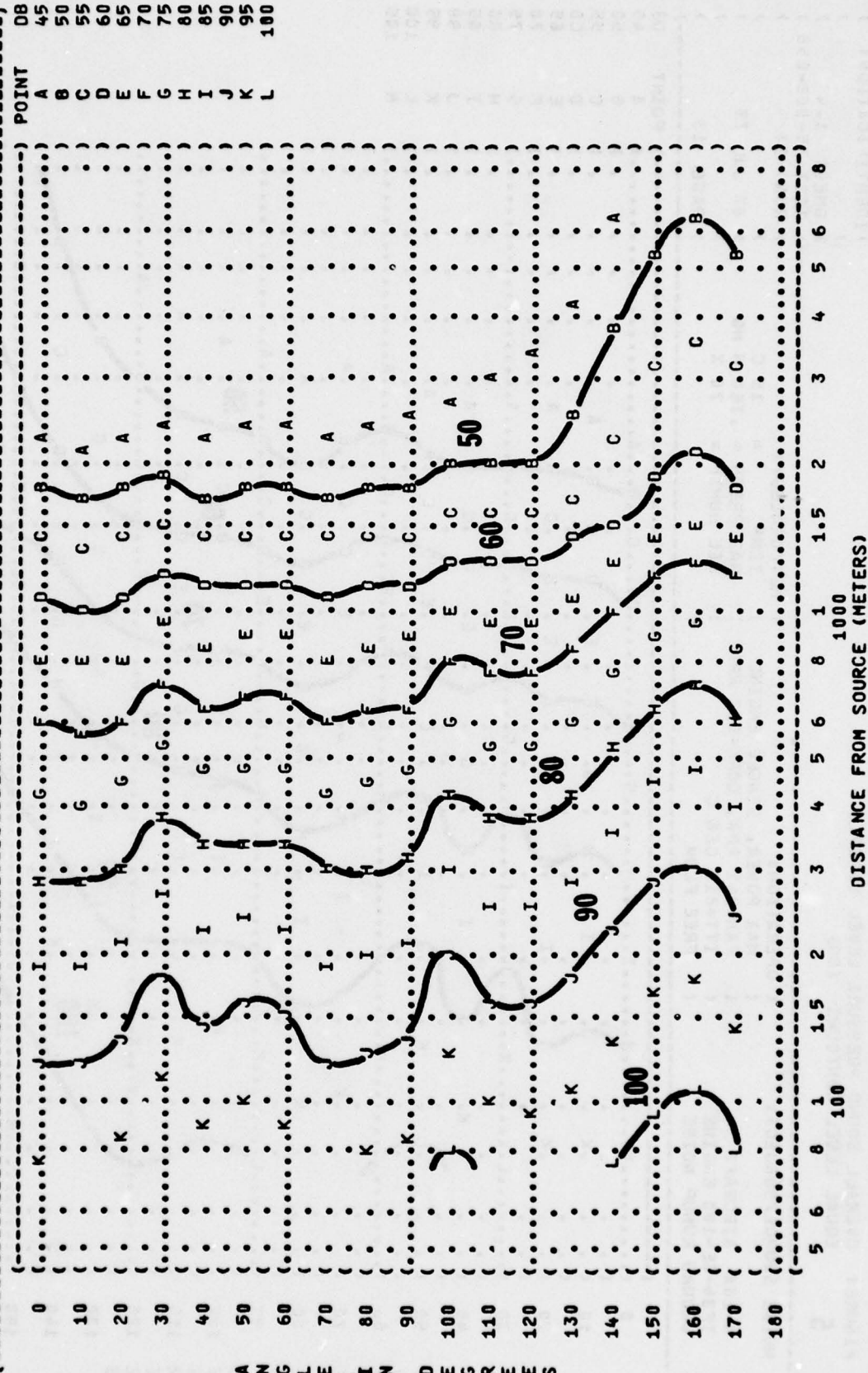
FIGURE: OVERALL SOUND PRESSURE LEVEL (OASPL)
 5
 EQUA. LEVEL CONTOURS (DB)

IDENTIFICATION:
 OMEGA 1.4
 TEST 75-002-058
 RUN 02
 07 JUL 75
 PAGE 13

NOISE SOURCE/SUBJECT:
 A-10A AIRCRAFT
 TF34-GE-100 ENGINE
 GROUND RUNUP NOISE

OPERATION:
 MAX CONT. SINGLE ENGINE
 FAN=77% RPM, CORE=91% RPM
 ITT=731 DEG C
 FREE FLOW

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %



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(-----)
( FIGURE: OVERALL SOUND PRESSURE LEVEL (OASPL) )
(      5 EQUAL LEVEL CONTOURS (DB) )
( )
( )
( ) OMEGA 1.4 )
( TEST 75-002-058 )
( ) RUN 03 )
( )
( NOISE SOURCE/SUBJECT: ) METEOROLOGY:
( ) OPERATION: ) TEMP = 15 C
( MAX POWER, SINGLE ENGINE ) BAR PRESS = .760 M HG
( FAN=84% RPM, CORE=95% RPM ) REL HUMID = 70 %
( ITT=810 DEG C )
( FREE FLOW )
( A-10A AIRCRAFT )
( TF34-GE-100 ENGINE )
( GROUND RUNUP NOISE )
( ) PAGE 13 )
(-----)
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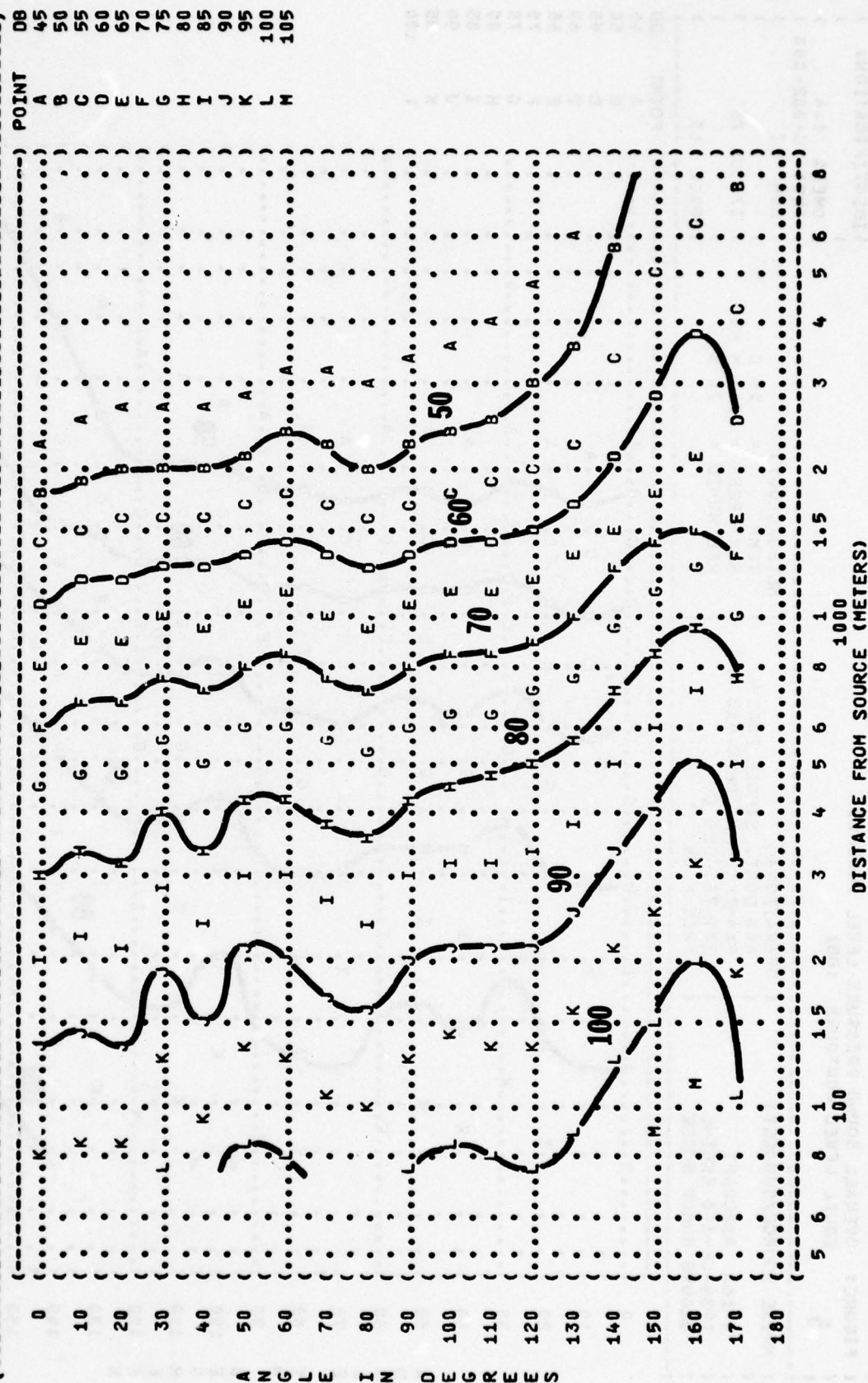


FIGURE: OVERALL SOUND PRESSURE LEVEL (OASPL)
 5
 IDENTIFICATION:
 OMEGA 1.4
 TEST 75-002-058
 RUN 04
 07 JUL 75
 PAGE 13

NOISE SOURCE/SUBJECT: A-10A AIRCRAFT
 TF34-GE-100 ENGINE
 GROUND RUNUP NOISE

OPERATION:
 MAX POWER, BOTH ENGINES
 FAN=84% RPM, CORE=95% RPM
 ITT=810 DEG C
 FREE FLOW

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %

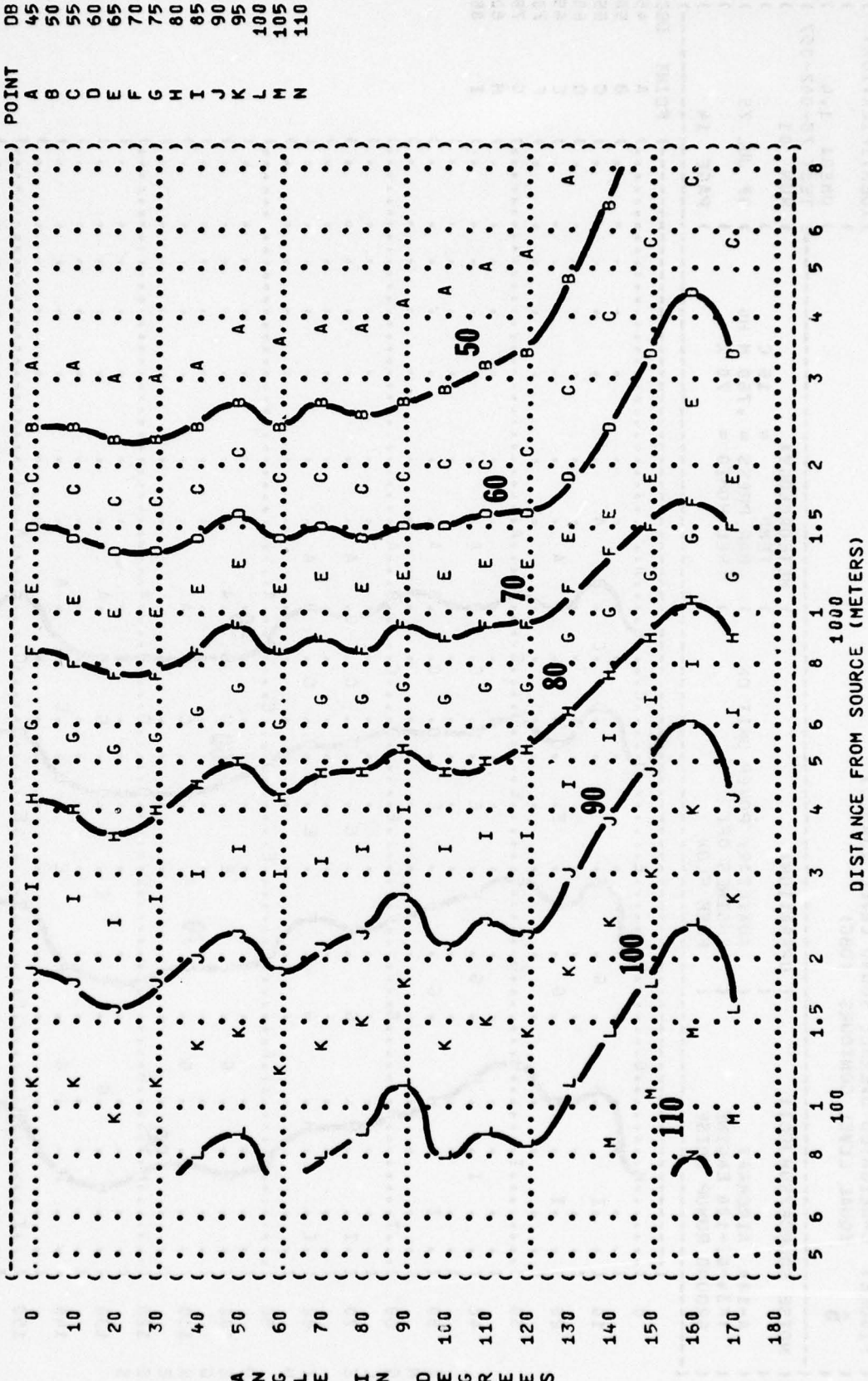
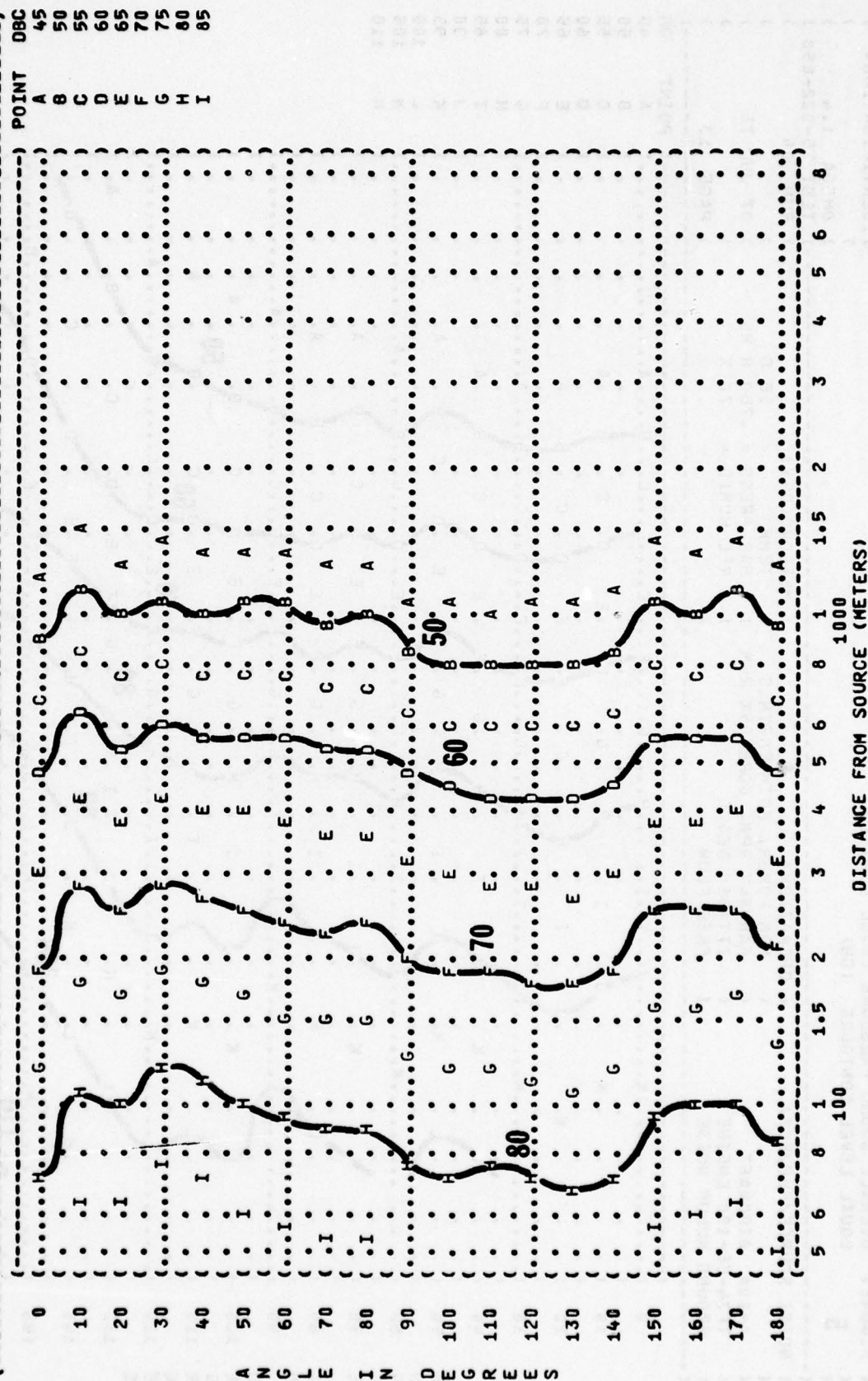


FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (OASLC)
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 IDENTIFICATION: OMEGA 1.4
 TEST 75-002-057
 RUN 01
 NOISE SOURCE/SUBJECT: OPERATION: METEOROLOGY: TEMP = 15 C
 A-10A AIRCRAFT AUXILIARY POWER UNIT ON BAR PRESS = .760 M HG
 TF34-GE-100 ENGINE ENGINES OFF REL HUMID = 70 %
 GROUND RUNUP NOISE FREE FLOW
 07 JUL 75
 PAGE 14



NOTE: DATA ARE APPLICABLE ONLY FOR LEFT SIDE OF AIRCRAFT BECAUSE APU IS AN ASYMMETRICAL SOURCE.

6

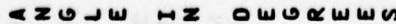
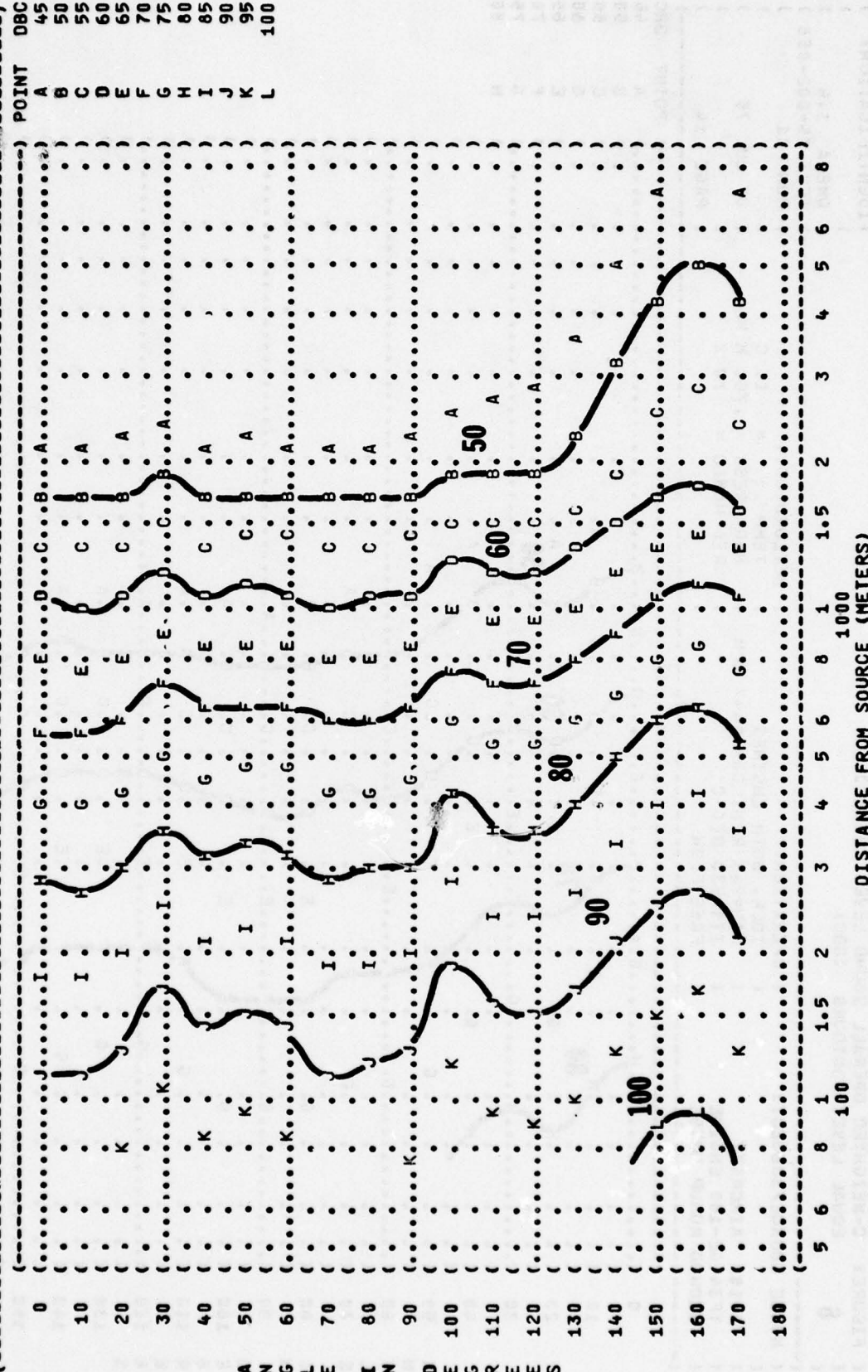


FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (OASLC)
 6
 IDENTIFICATION:
 NOISE SOURCE/SUBJECT:
 (MAX CONT. SINGLE ENGINE)
 (FAN=77% RPM, CORE=91% RPM)
 (ITI=731 DEG C)
 (FREE FLOW)
 METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %
 A-10A AIRCRAFT
 TF34-GE-100 ENGINE
 GROUND RUNUP NOISE
 07 JUL 75
 PAGE 14
 OMEGA 1.4
 TEST 75-002-058
 RUN 02




```
(-----)
( FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (OASLC) ) IDENTIFICATION: )
( EQUAL LEVEL CONTOURS (DBC) ) )
( 6 ) OMEGA 1.4 )
( ) TEST 75-002-058 )
( NOISE SOURCE/SUBJECT: ) METEOROLOGY: ) RUN 03 )
( ) ) TEMP = 15 C ) )
( A-10A AIRCRAFT ) FAN=84% RPM, CORE=95% RPM ) BAR PRESS = .760 M HG )
( TF34-GE-100 ENGINE ) ITT=810 DEG C ) REL HUMID = 70 % )
( GROUND RUNUP NOISE ) FREE FLOW ) PAGE 14 )
(-----)
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) IDENTIFICATION:)
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RUN 04

METEOROLOGY:

(MAX POWER, BOTH ENGINES

BAR PRESS = .760 M HG

REL HUMID = 70 %

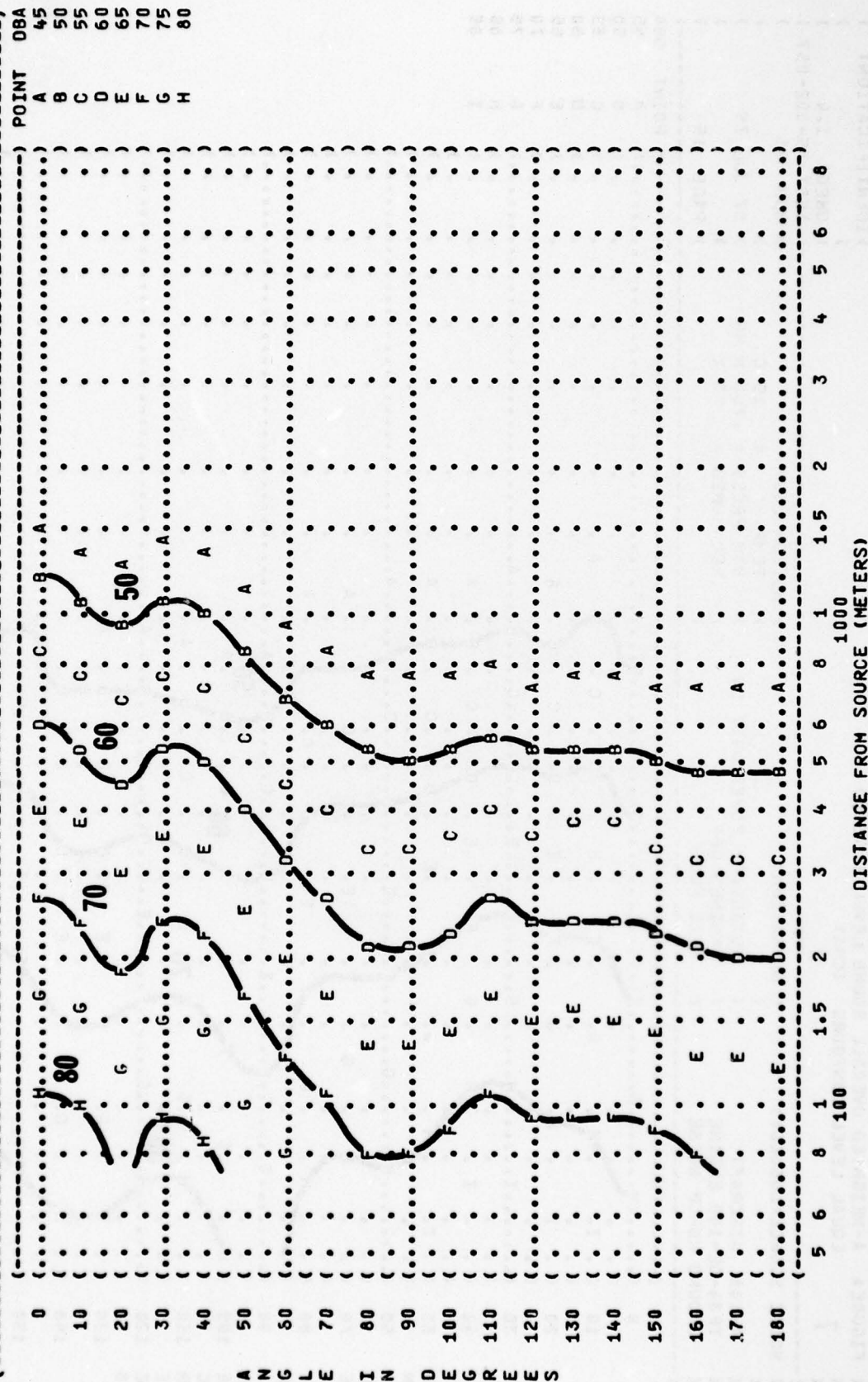
PAGE 14

[illegible]

ANGLE IN DEGREES

DISTANCE FROM SOURCE (METERS)

(FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (OASLA)
 (7
 (EQUAL LEVEL CONTOURS (DBA)
 () IDENTIFICATION:)
 () OMEGA 1.4
 () TEST 75-002-058
 () RUN 01
 () METEOROLOGY:)
 () TEMP = 15 C
 () BAR PRESS = .760 H HG
 () REL HUMID = 70 %
 () 07 JUL 75
 () PAGE 15
 ()



**FIGURE: A-WEIGHTED OVERALL SOUND LEVEL {OASLA}
EQUAL LEVEL CONTOURS (DBA)**

OMEGA 1.4

NOISE SOURCE/SUBJECT:

(OPERATION:

(MAX POWER, SINGLE ENGINE

(FAN=84% RPM. CORE=95% RPM

(ITT=810 DEG C

(FREE FLOW

METEOROLOGY:

TEMP

BAR PRESS = .760 M

REL HUMID = 70 %

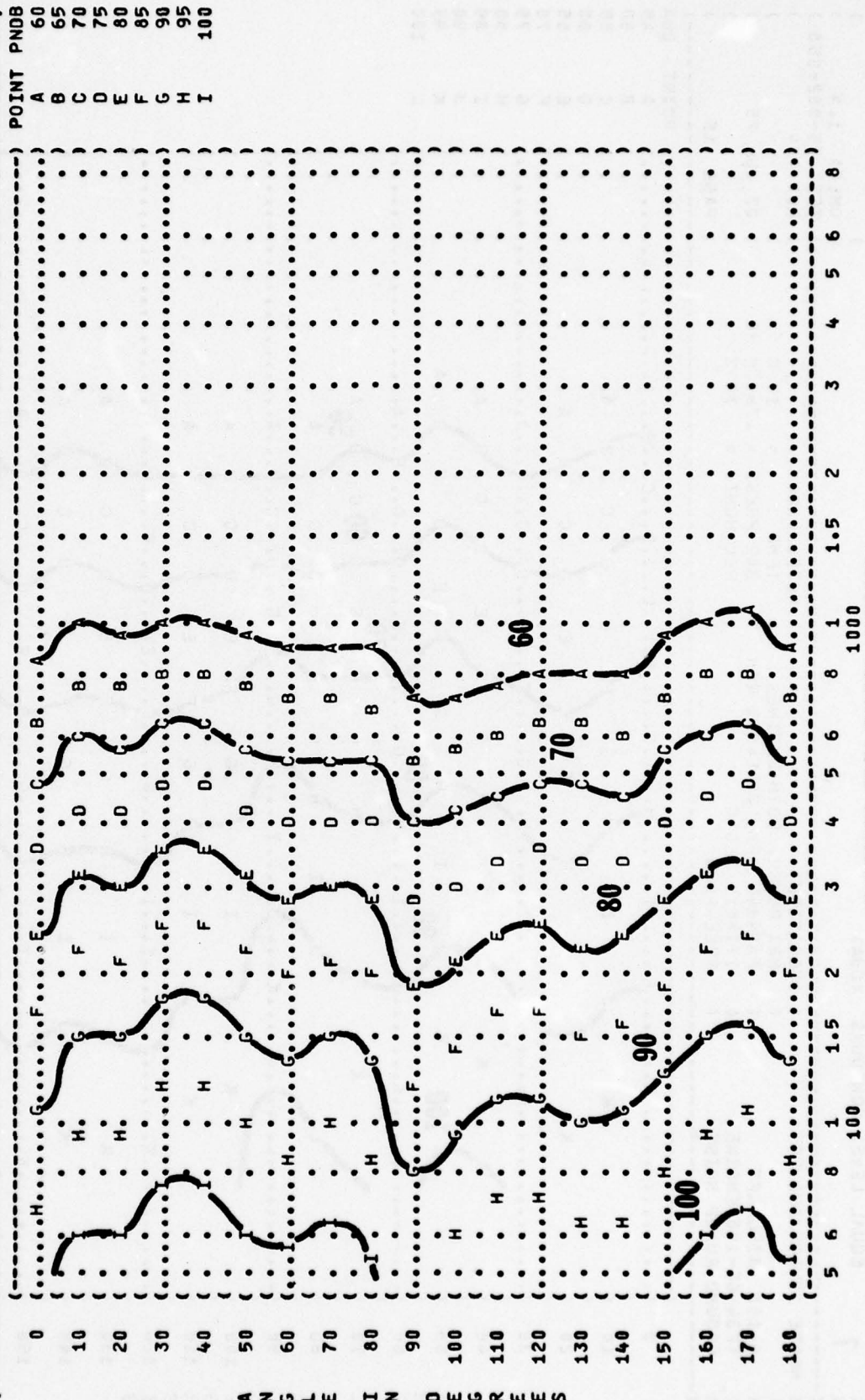
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ANGLE IN DEGREES

DISTANCE FROM SOURCE (METERS)

[illegible]

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(-----)
( ( FIGURE: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION {PNLI} ) IDENTIFICATION: )
( ( EQUAL LEVEL CONTOURS (PNDB) ) )
( ( 8 ) OMEGA 1.4 )
(-----)
( ( NOISE SOURCE/SUBJECT: ) METEOROLOGY: )
( ( ) TEMP = 15 C )
( ( A-10A AIRCRAFT ) AUXILIARY POWER UNIT ON ) BAR PRESS = .760 M HG )
( ( TF34-GE-100 ENGINE ) ENGINES OFF ) REL HUMID = 70 % )
( ( GROUND RUNUP NOISE ) FREE FLOW ) PAGE 16 )
(-----)
```



NOTE: DATA ARE APPLICABLE ONLY FOR LEFT SIDE OF AIRCRAFT BECAUSE APU IS AN ASYMMETRICAL SOURCE.

FIGURE: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT)
 8
 IDENTIFICATIONS:
 OMEGA 1.4
 TEST 75-002-058
 RUN 02
 07 JUL 75
 PAGE 16

NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:
 (MAX CONT. SINGLE ENGINE) TEMP = 15 C
 (FAN=77% RPM, CORE=91% RPM) BAR PRESS = .760 M HG
 (ITT=731 DEG C) REL HUMID = 70 %
 (FREE FLOW)

A-10A AIRCRAFT
 TF34-GE-100 ENGINE
 GROUND RUNUP NOISE

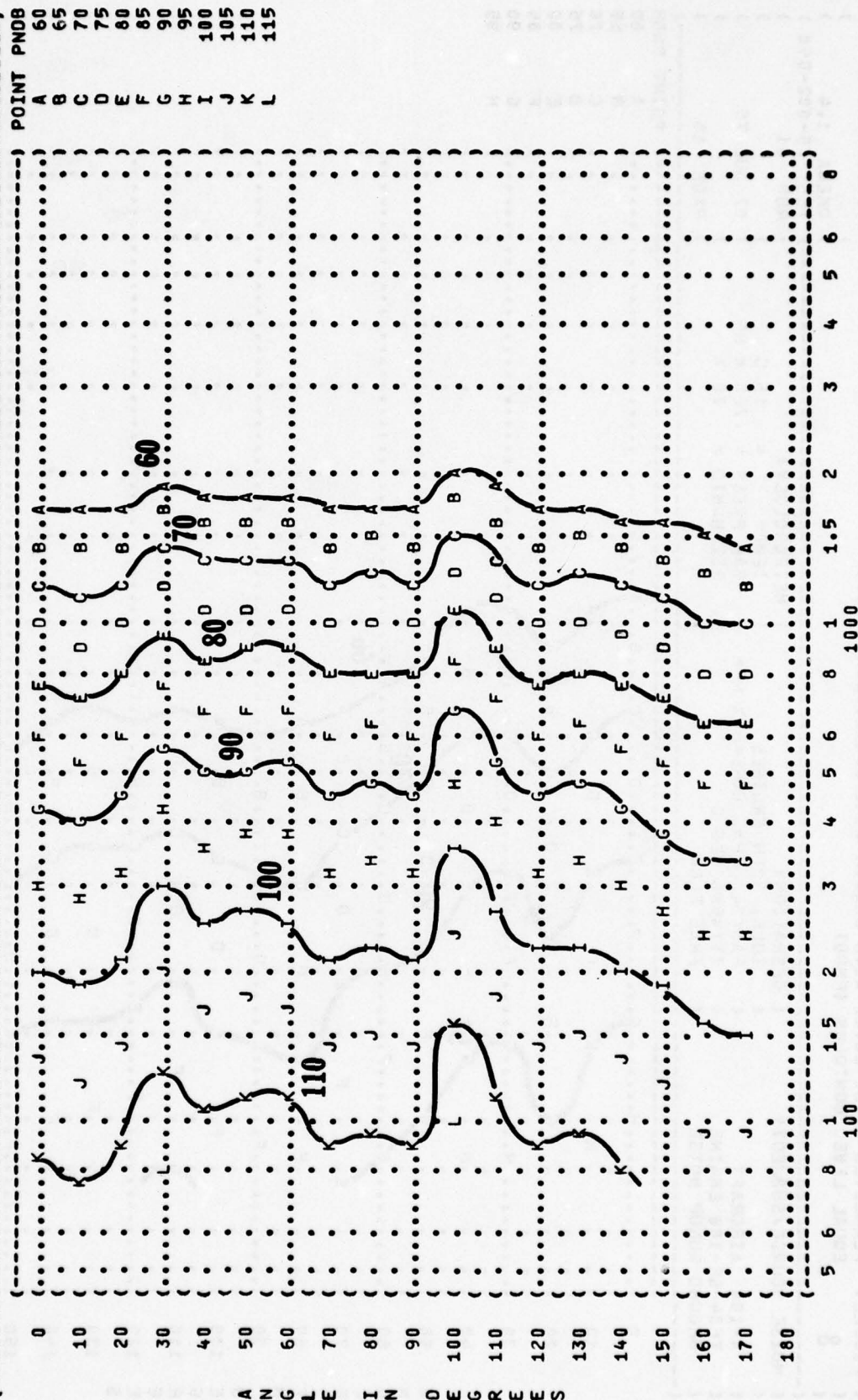
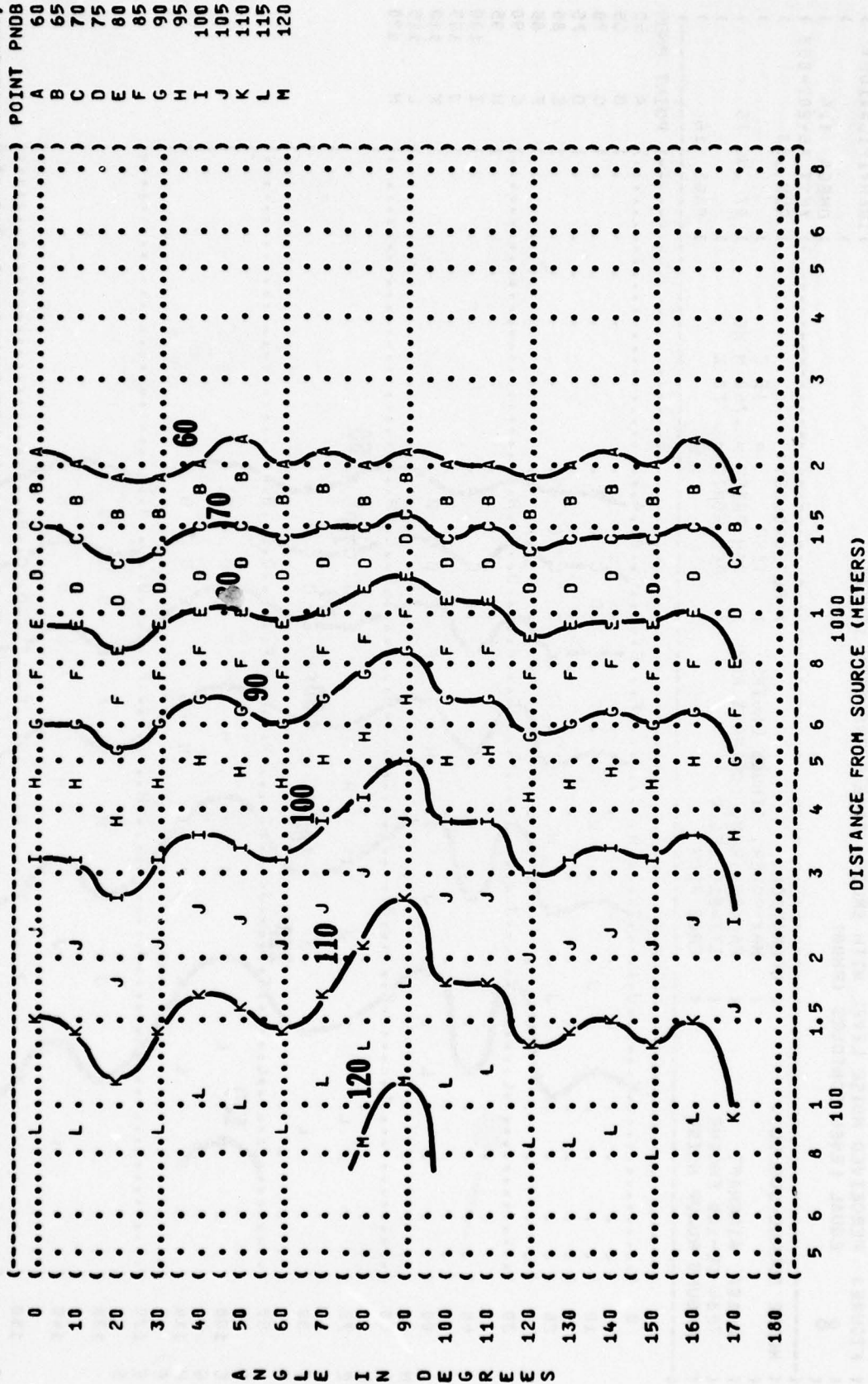
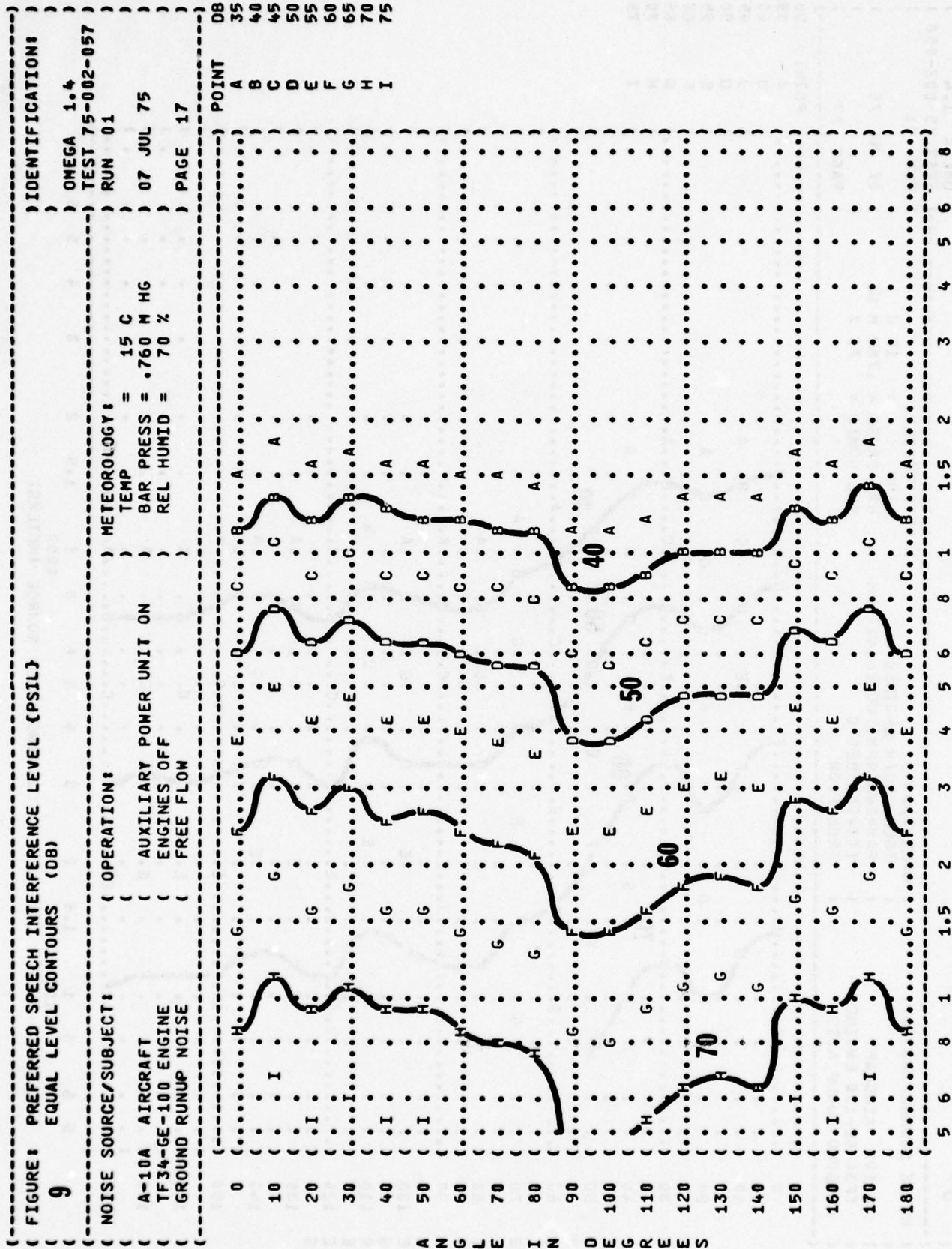


FIGURE: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT)
 8
 IDENTIFICATION:
 OMEGA 1.4
 TEST 75-002-058
 RUN 04
 07 JUL 75
 PAGE 16

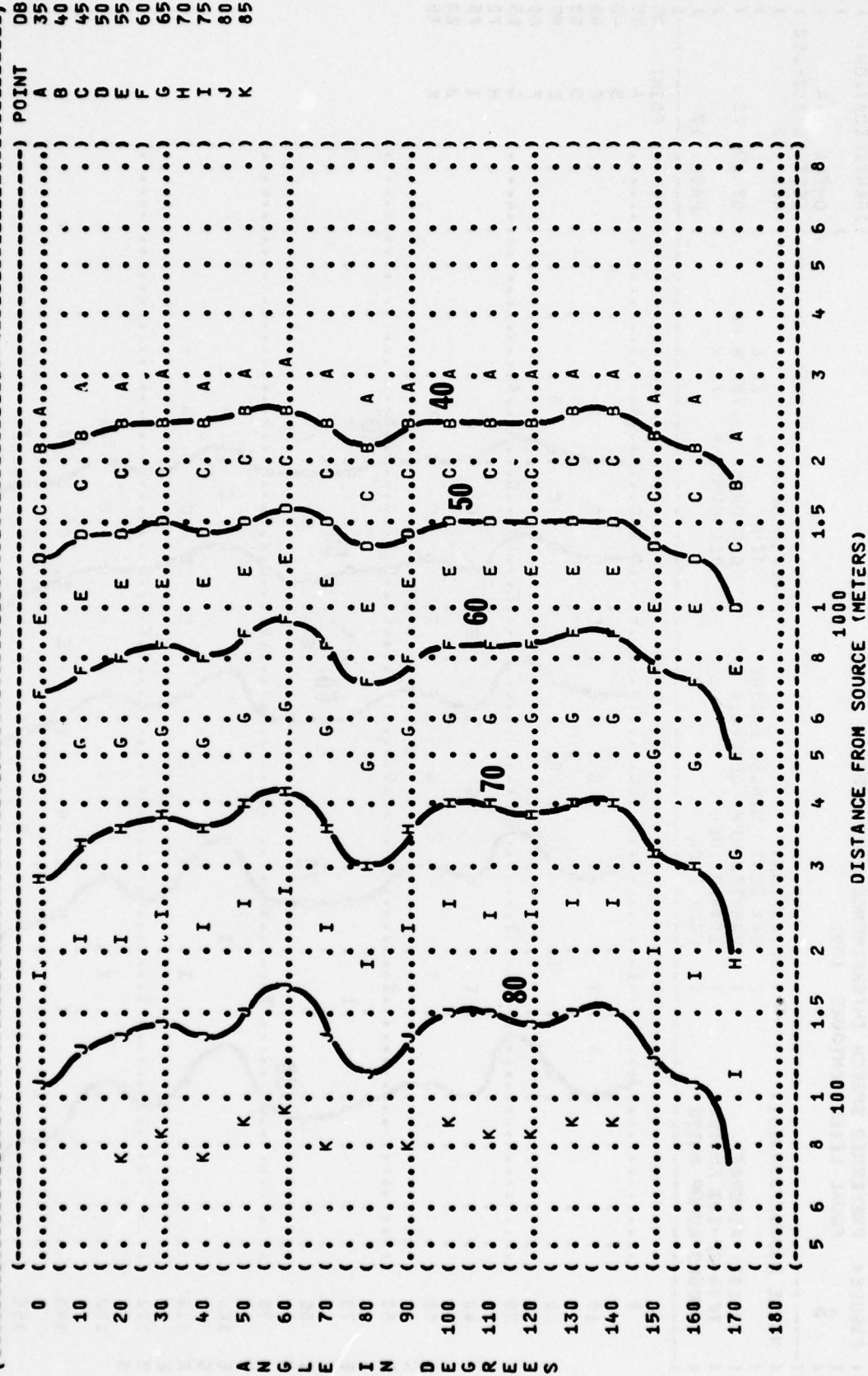
NOISE SOURCE/SUBJECT: OPERATION: METEOROLOGY:
 MAX POWER, BOTH ENGINES TEMP = 15 C
 A-10A AIRCRAFT FAN=84% RPM, CORE=95% RPM BAR PRESS = .760 M HG
 TF34-GE-100 ENGINE ITT=810 DEG C REL HUMID = 70 %
 GROUND RUNUP NOISE FREE FLOW





NOTE: DATA ARE APPLICABLE ONLY FOR LEFT SIDE OF AIRCRAFT BECAUSE APU IS AN ASYMMETRICAL SOURCE.

(FIGURE: PREFERRED SPEECH INTERFERENCE LEVEL (PSIL)
 (9
 () IDENTIFICATION:
 ()
 () OMEGA 1.4
 () TEST 75-002-050
 () RUN 03
 ()
 (NOISE SOURCE/SUBJECT: (OPERATION: (METEOROLOGY:
 () MAX POWER, SINGLE ENGINE) TEMP = 15 C
 () FAN=84% RPM, CORE=95% RPM) BAR PRESS = .760 M HG
 () ITT=810 DEG C) REL HUMID = 70 %
 () FREE FLOW)
 ()
 (A-10A AIRCRAFT
 (TF34-GE-100 ENGINE
 (GROUND RUNUP NOISE
 () PAGE 17
 ()



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PREFERRED SPEECH INTENSITY LEVEL CONTOURS

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-05

9) METEOROLOGY:

TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

MAX POWER, BOTH ENGINES
FAN=84% RPM, CORE=95% RPM
ITT=810 DEG C
FREE FLOW

TEMP
BAR
REL

TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

07 JUL 75
PAGE 17

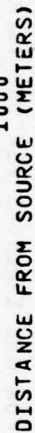
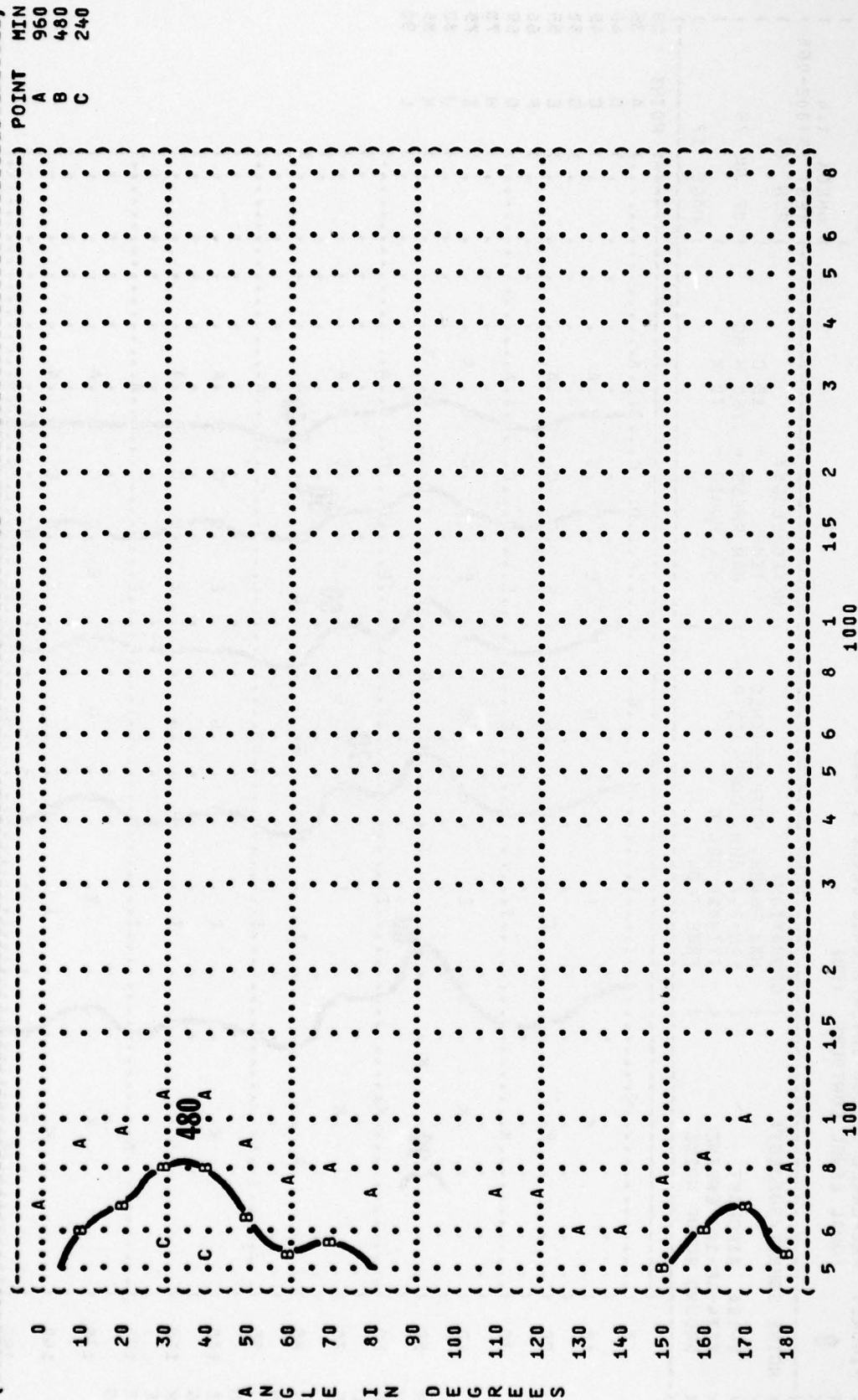


FIGURE:	MAXIMUM PERMISSIBLE TIME {T} FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)	IDENTIFICATION:
10	EQUAL TIME CONTOURS (MINUTES)	
	NO PROTECTION	OMEGA 1.4
		TEST 75-002-057
		RUN 01
NOISE SOURCE/SUBJECT:	OPERATION:	METEOROLOGY:
A-10A AIRCRAFT	AUXILIARY POWER UNIT ON	TEMP = 15 C
TF34-GE-100 ENGINE	ENGINES OFF	BAR PRESS = .760 M HG
GROUND RUNUP NOISE	FREE FLOW	REL HUMID = 70 %
		PAGE 7



NOTE: DATA ARE APPLICABLE ONLY FOR LEFT SIDE OF AIRCRAFT BECAUSE APU IS AN ASYMMETRICAL SOURCE.


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(-----)
( FIGURE: MAXIMUM PERMISSIBLE TIME {T} FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) ) IDENTIFICATION: )
(    10      EQUAL TIME CONTOURS (MINUTES) ) )
( ) ) OMEGA 1.4 )
( ) ) TEST 75-002-057 )
( NOISE SOURCE/SUBJECT: ) METEOROLOGY: ) RUN 01 )
( ) ) TEMP = 15 C ) )
( A-10A AIRCRAFT ) AUXILIARY POWER UNIT ON ) BAR PRESS = .760 M HG )
( TF34-GE-100 ENGINE ) ENGINES OFF ) REL HUMID = 70 % )
( GROUND RUNUP NOISE ) FREE FLOW ) PAGE 8 )
(-----)
```

0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
A	N	G	L	E	I	N	D	E	G	R	E	E	S					

PERSONNEL MAY BE EXPOSED UP TO 960 MINUTES PER DAY
AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 50 METERS
FOR ALL ANGLES EVALUATED (INDICATED BY \angle AT LEFT)

UNDER THE FOLLOWING EAR PROTECTION CONDITIONS:

MINIMUM QPL EAR MUFFS
AMERICAN OPTICAL 1700 EAR MUFFS
V-51R EAR PLUGS
COMFIT TRIPLE FLANGE EAR PLUGS
H-133 GROUND COMMUNICATION UNIT

5 6 8 1 1.5 2 3 4 5 6 8 1000

5 6 8 1 1.5 2 3 4 5 6 8 1000

NOTE: DATA ARE APPLICABLE ONLY FOR LEFT SIDE OF AIRCRAFT BECAUSE APU IS AN ASYMMETRICAL SOURCE.

FIGURE: MAXIMUM PERMISSIBLE TIME {T} FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)
()
EQUAL TIME CONTOURS (MINUTES)
IDENTIFICATION:
,

NOISE SOURCE/SUBJECT:

A-10A AIRCRAFT
TF34-GE-100 ENGINE
GROUND RUNUP NOISE

PERSONNEL MAY BE EXPOSED UP TO 960 MINUTES PER DAY

AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 75 METERS

FOR ALL ANGLES EVALUATED (INDICATED BY < AT LEFT)

UNDER THE FOLLOWING EAR PROTECTION CONDITIONS:

MINIMUM QPL EAR MUFFS

AMERICAN OPTICAL 1700 EAR MUFFS

V-51R EAR PLUGS

COMFIT TRIPLE FLANGE EAR PLUGS

H-133 GROUND COMMUNICATION UNIT

5 6 8 1 1.5 2 3 4 5 6 8 100 1000

DISTANCE FROM SOURCE (METERS)

	MIN	POINT
0	960	A
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DISTANCE FROM SOURCE (METERS)

DISTANCE FROM SOURCE (METERS)

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 (FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)) IDENTIFICATION:
 (10)
 (-----)
 (NOISE SOURCE/SUBJECT:) OPERATION:) METEOROLOGY:
 ((MAX POWER, SINGLE ENGINE) TEMP = 15 C
 ((FAN=84% RPM, CORE=95% RPM) BAR PRESS = .760 M HG
 ((ITT=810 DEG C) REL HUMID = 70 %
 ((FREE FLOW))
 (-----)
 (A-10A AIRCRAFT
 (TF34-GE-100 ENGINE
 (GROUND RUNUP NOISE
 (-----)

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 (5 6 8 1 1.5 2 3 4 5 6 8)
 (100 1000)
 (-----)
 (DISTANCE FROM SOURCE (METERS))

PERSONNEL MAY BE EXPOSED UP TO 960 MINUTES PER DAY
 AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 75 METERS

FOR ALL ANGLES EVALUATED (INDICATED BY < AT LEFT)

UNDER THE FOLLOWING EAR PROTECTION CONDITIONS:

AMERICAN OPTICAL 1700 EAR MUFFS

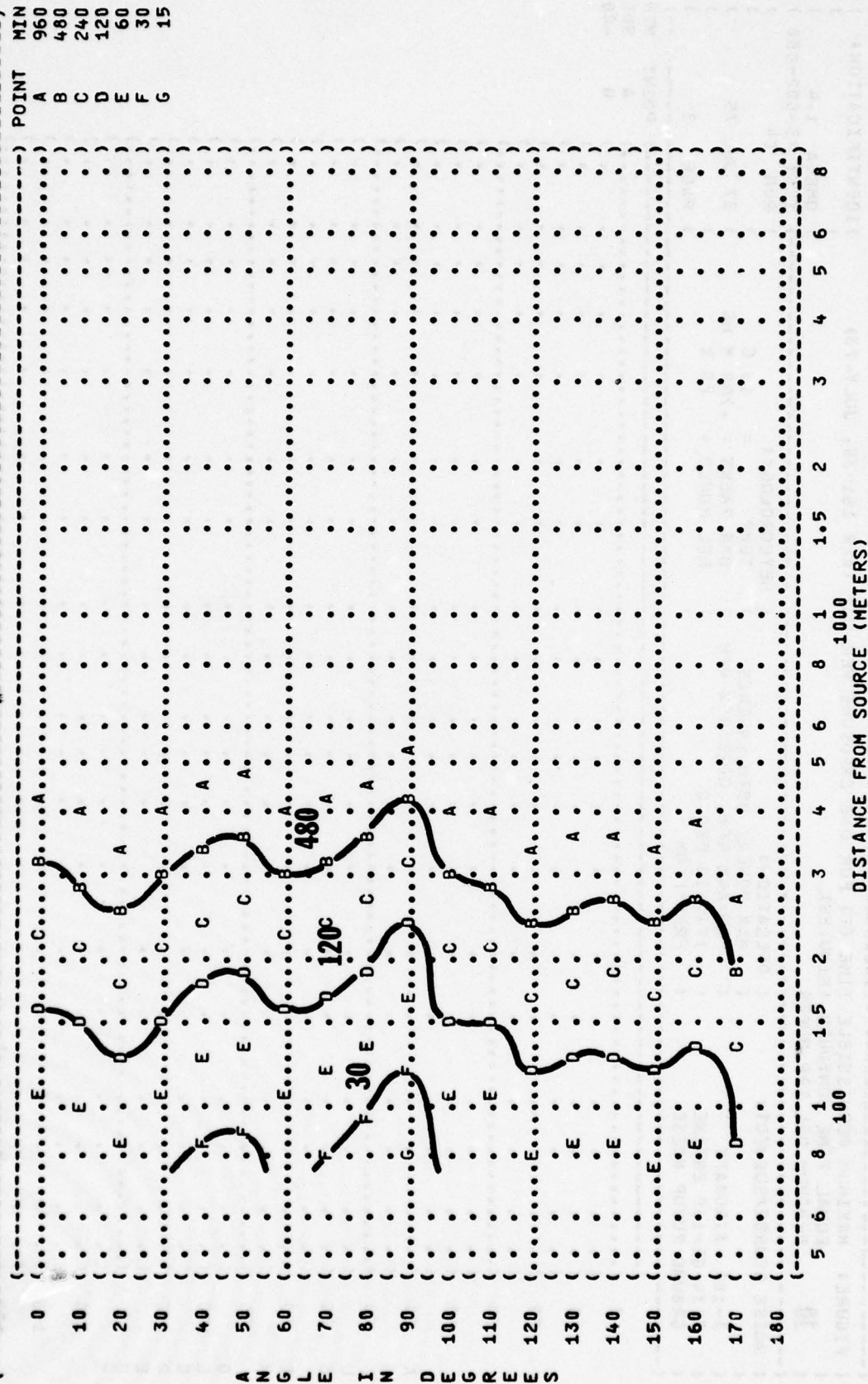
V-51R EAR PLUGS

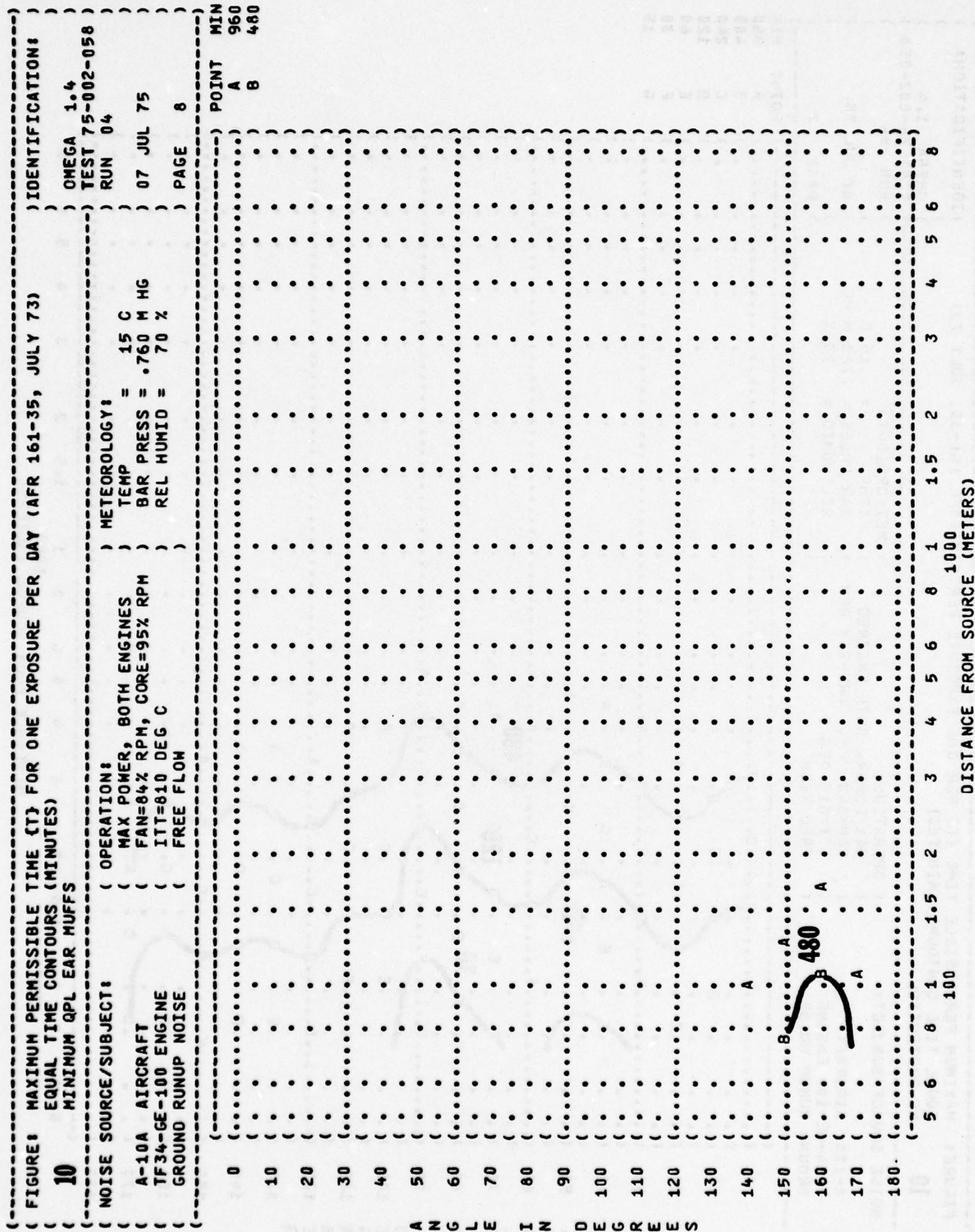
COMFIT TRIPLE FLANGE EAR PLUGS

H-133 GROUND COMMUNICATION UNIT

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() IDENTIFICATION :
(FIGURE : MAXIMUM PERMISSIBLE TIME {T} FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73))
(	EQUAL TIME CONTOURS (MINUTES))
(	NO PROTECTION	) OMEGA 1.4
(	10	) TEST 75-002-058
(	NOISE SOURCE/SUBJECT :	) RUN 04
(	OPERATION :	) METEOROLOGY :
(	MAX POWER, BOTH ENGINES	) TEMP = 15 C
(	FAN=84% RPM, CORE=95% RPM	) BAR PRESS = .760 M HG
(	IIT=810 DEG C	) REL HUMID = 70 %
(	FREE FLOW	) PAGE 7
(	A-10A AIRCRAFT)
(	TF34-GE-100 ENGINE)
(	GROUND RUNUP NOISE)





ANGLE IN DEGREES

DISTANCE FROM SOURCE (METERS)

FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)

IDENTIFICATION:

OMEGA 1.4

TEST 75-002-058

RUN 04

07 JUL 75

PAGE 11

NOISE SOURCE/SUBJECT:

OPERATION:

METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

MAX POWER, BOTH ENGINES

FAN=84% RPM, CORE=95% RPM

ITT=810 DEG C

FREE FLOW

A-10A AIRCRAFT

TF34-GE-100 ENGINE

GROUND RUNUP NOISE

0<

10<

20<

30<

40<

50<

60<

70<

80<

90<

100<

110<

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130<

140<

150<

160<

170<

180

PERSONNEL MAY BE EXPOSED UP TO 960 MINUTES PER DAY

AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 75 METERS

FOR ALL ANGLES EVALUATED (INDICATED BY < AT LEFT)

UNDER THE FOLLOWING EAR PROTECTION CONDITIONS:

V-51R EAR PLUGS

H-133 GROUND COMMUNICATION UNIT

5 6 8 1 1.5 2 3 4 5 6 8

100

DISTANCE FROM SOURCE (METERS)

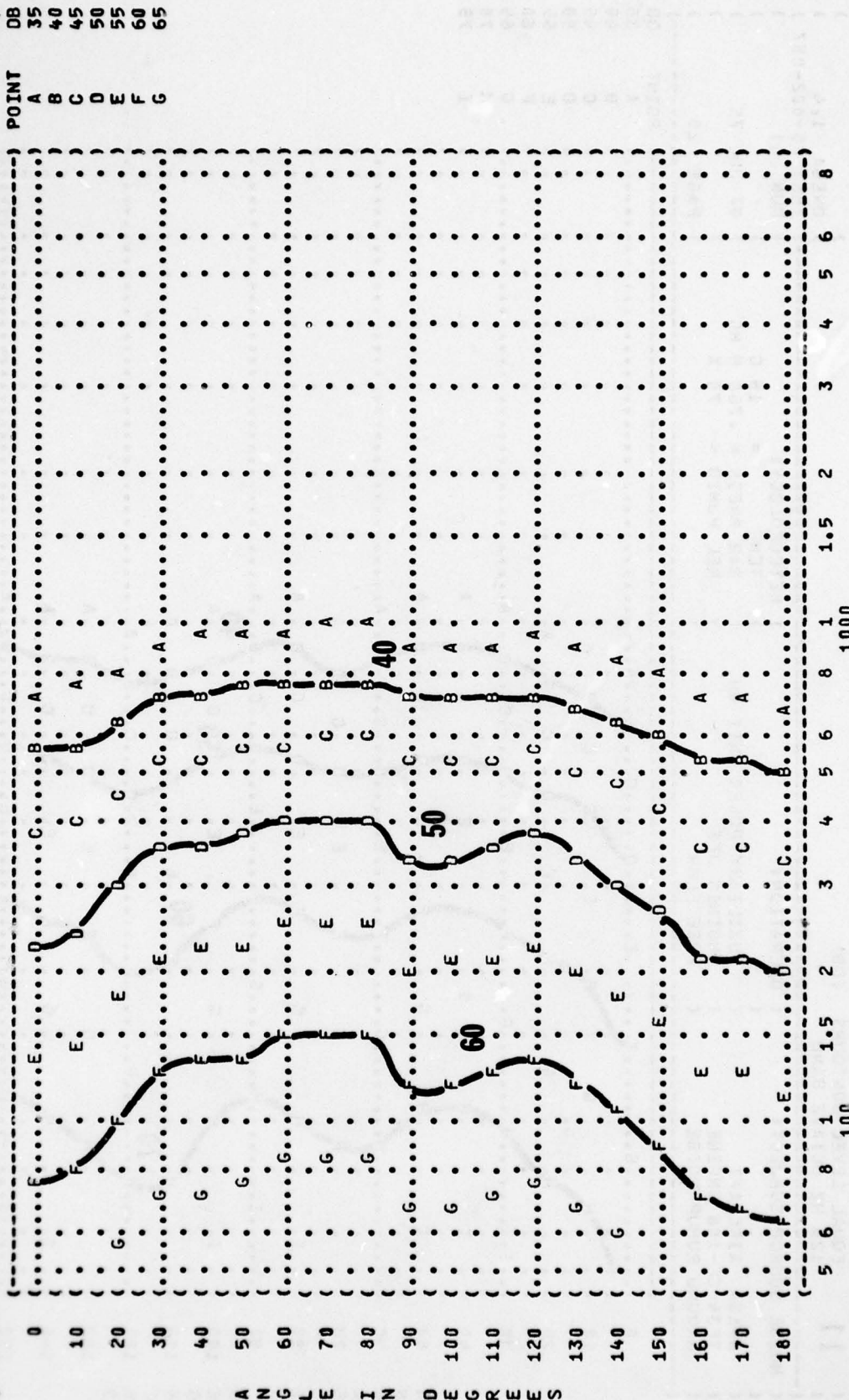
FIGURE 1 SOUND PRESSURE LEVEL (SPL)
EQUAL LEVEL CONTOURS (DB)

11 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT: () IDENTIFICATION: ()
() OMEGA 1.4
() TEST 75-002-057
() RUN 01

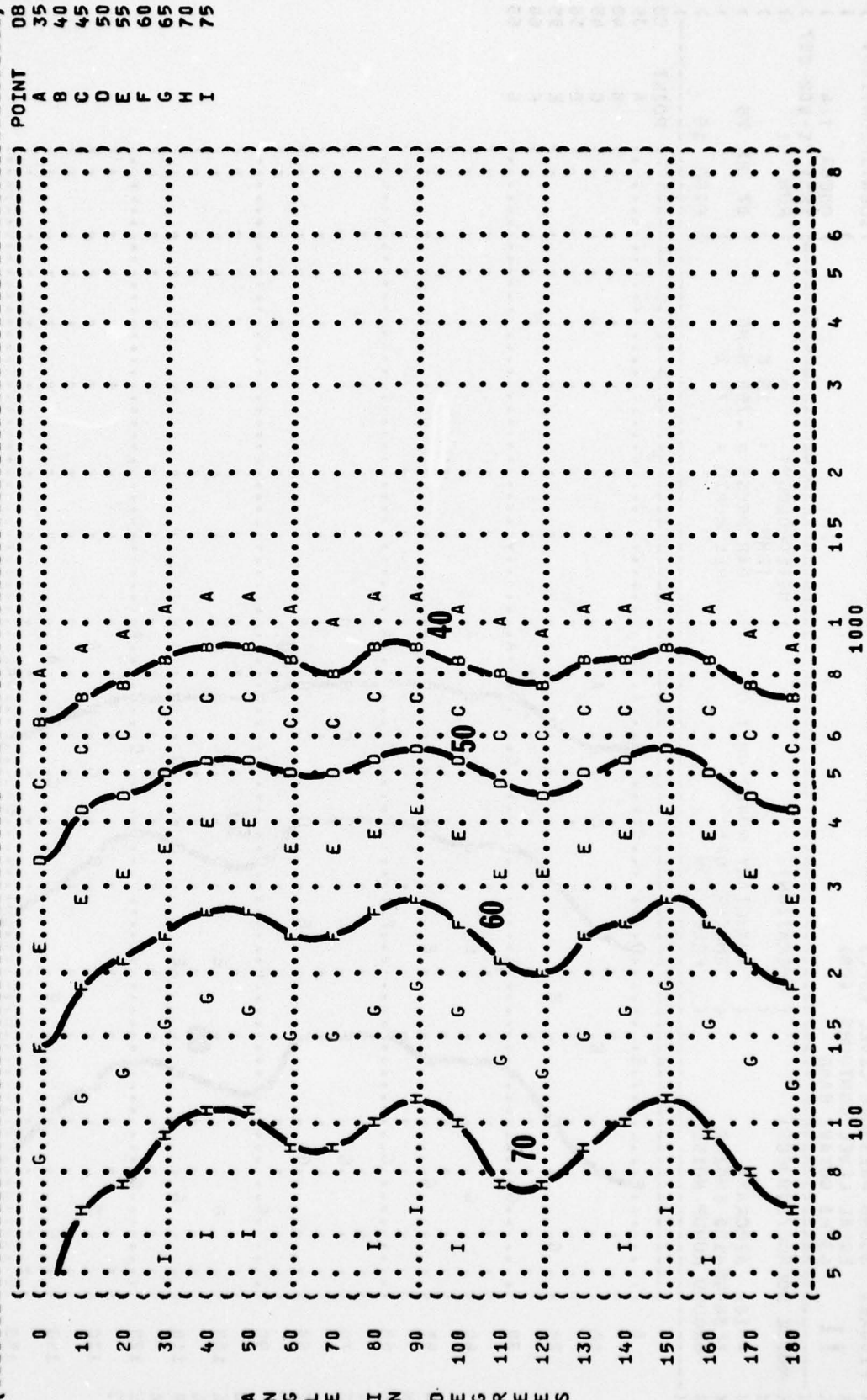
() OPERATION: () METEOROLOGY: ()
() TEMP = 15 C
() AUXILIARY POWER UNIT ON () BAR PRESS = .760 M HG
() ENGINES OFF () REL HUMID = 70 %
() FREE FLOW () PAGE 19

A-10A AIRCRAFT
TF34-GE-100 ENGINE
GROUND RUNUP NOISE



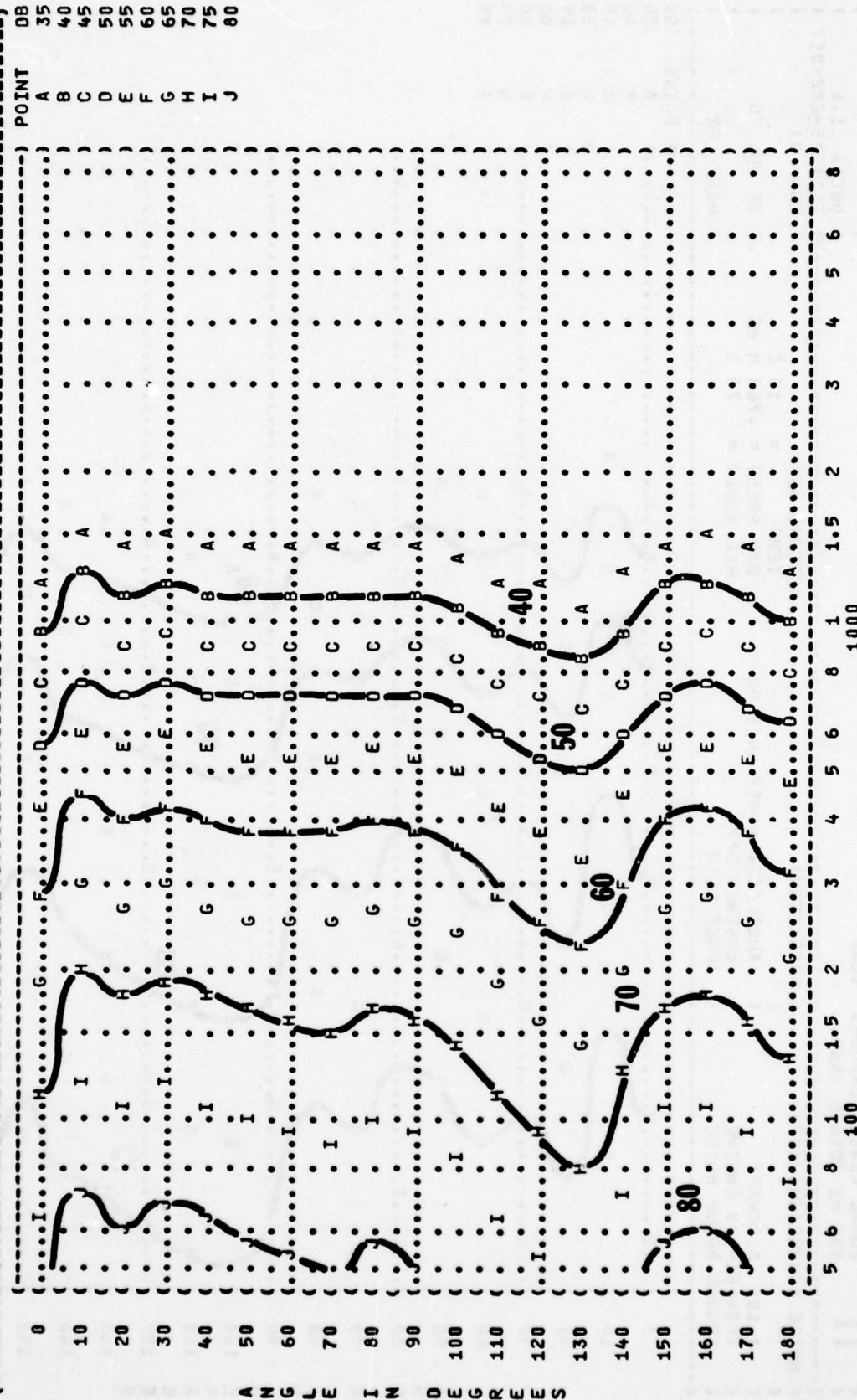
NOTE: DATA ARE APPLICABLE ONLY FOR LEFT SIDE OF AIRCRAFT BECAUSE APU IS AN ASYMMETRICAL SOURCE.

(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (11 EQUAL LEVEL CONTOURS (DB)
 (125 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (A-10A AIRCRAFT (AUXILIARY POWER UNIT ON
 (TF34-GE-100 ENGINE (ENGINES OFF
 (GROUND RUNUP NOISE (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST 75-002-057
 (RUN 01
 (07 JUL 75
 (PAGE 20



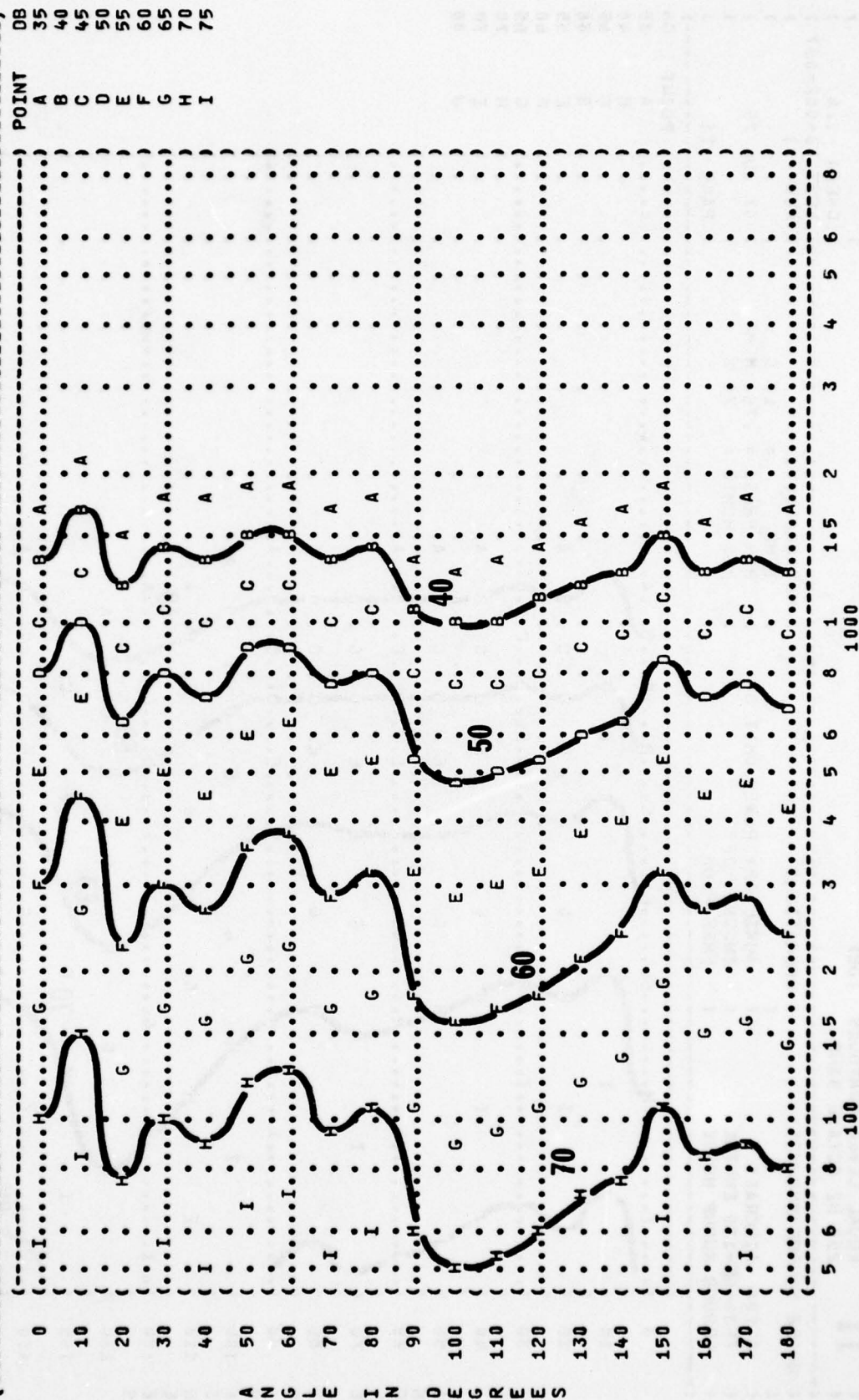
NOTE: DATA ARE APPLICABLE ONLY FOR LEFT SIDE OF AIRCRAFT BECAUSE APU IS AN ASYMMETRICAL SOURCE.

(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (11 EQUAL LEVEL CONTOURS (DB)
 (250 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (A-10A AIRCRAFT (AUXILIARY POWER UNIT ON
 (TF34-GE-100 ENGINE (ENGINES OFF
 (GROUND RUNUP NOISE (FREE FLOW
 (METEOROLOGY: TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST 75-002-057
 (RUN 01
 (07 JUL 75
 (PAGE 21



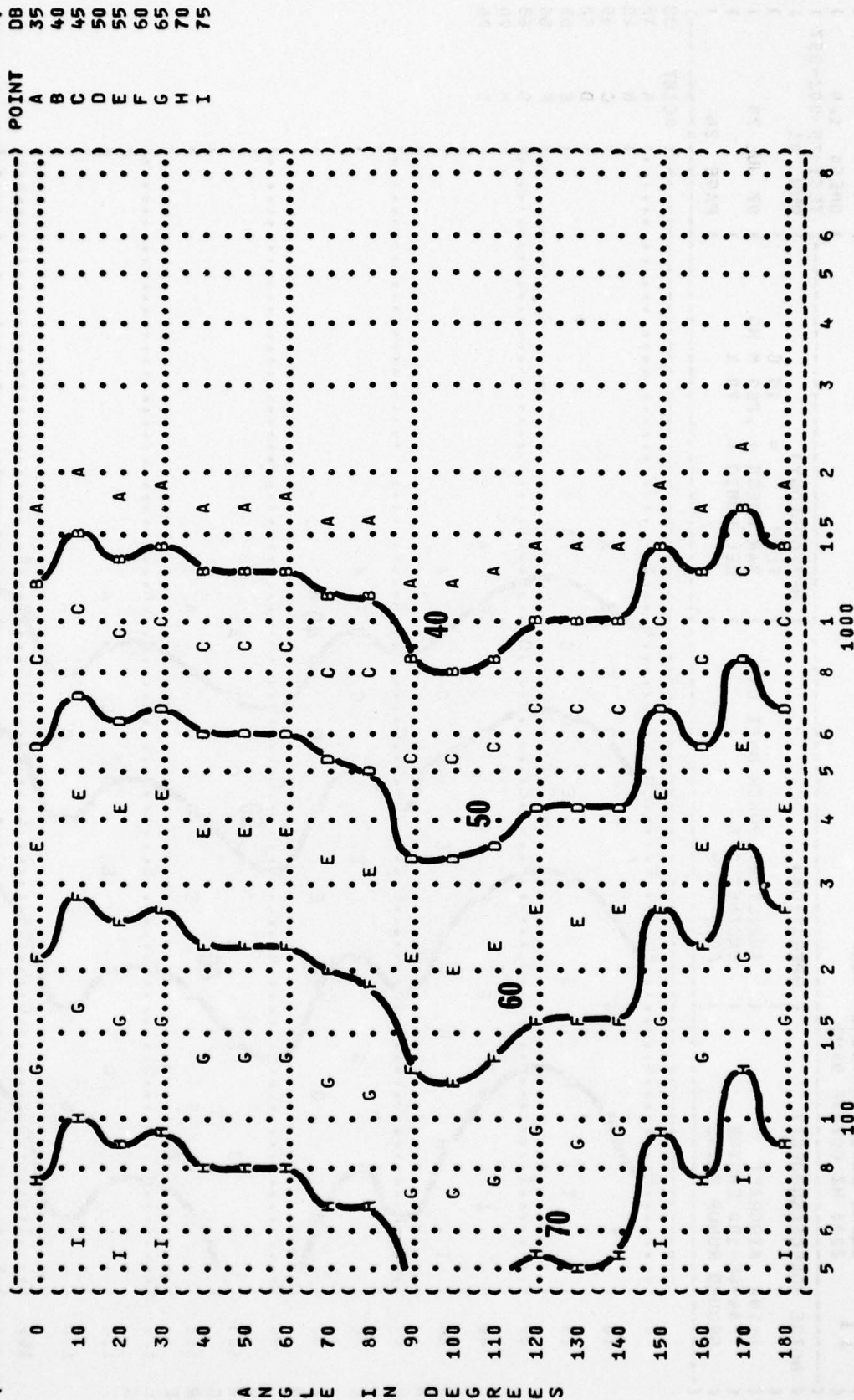
NOTE: DATA ARE APPLICABLE ONLY FOR LEFT SIDE OF AIRCRAFT BECAUSE APU IS AN ASYMMETRICAL SOURCE.
 DISTANCE FROM SOURCE (METERS)

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(-----)
( FIGURE: SOUND PRESSURE LEVEL {SPL} ) IDENTIFICATION:
( EQUAL LEVEL CONTOURS (DB) ) )
( 11 ) OMEGA 1.4
( 500 HZ OCTAVE BAND ) TEST 75-002-057
( NOISE SOURCE/SUBJECT: ) METEOROLOGY:
( ) TEMP = 15 C
( A-10A AIRCRAFT ) AUXILIARY POWER UNIT ON ) BAR PRESS = .760 M HG
( TF34-GE-100 ENGINE ) ENGINES OFF ) REL HUMID = 70 %
( GROUND RUNUP NOISE ) FREE FLOW ) PAGE 22
(-----)
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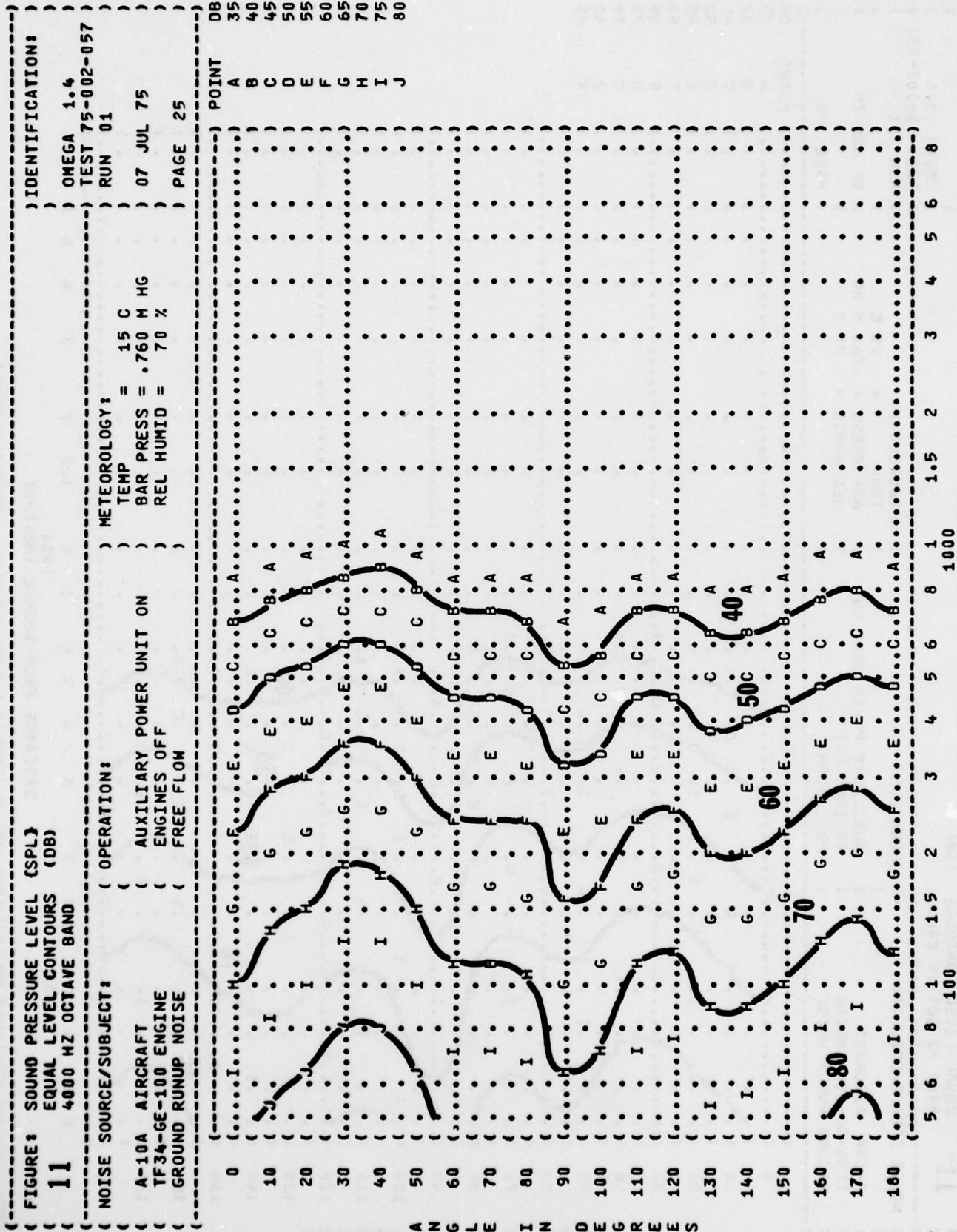


NOTE: DATA ARE APPLICABLE ONLY FOR LEFT SIDE OF AIRCRAFT BECAUSE APU IS AN ASYMMETRICAL SOURCE.

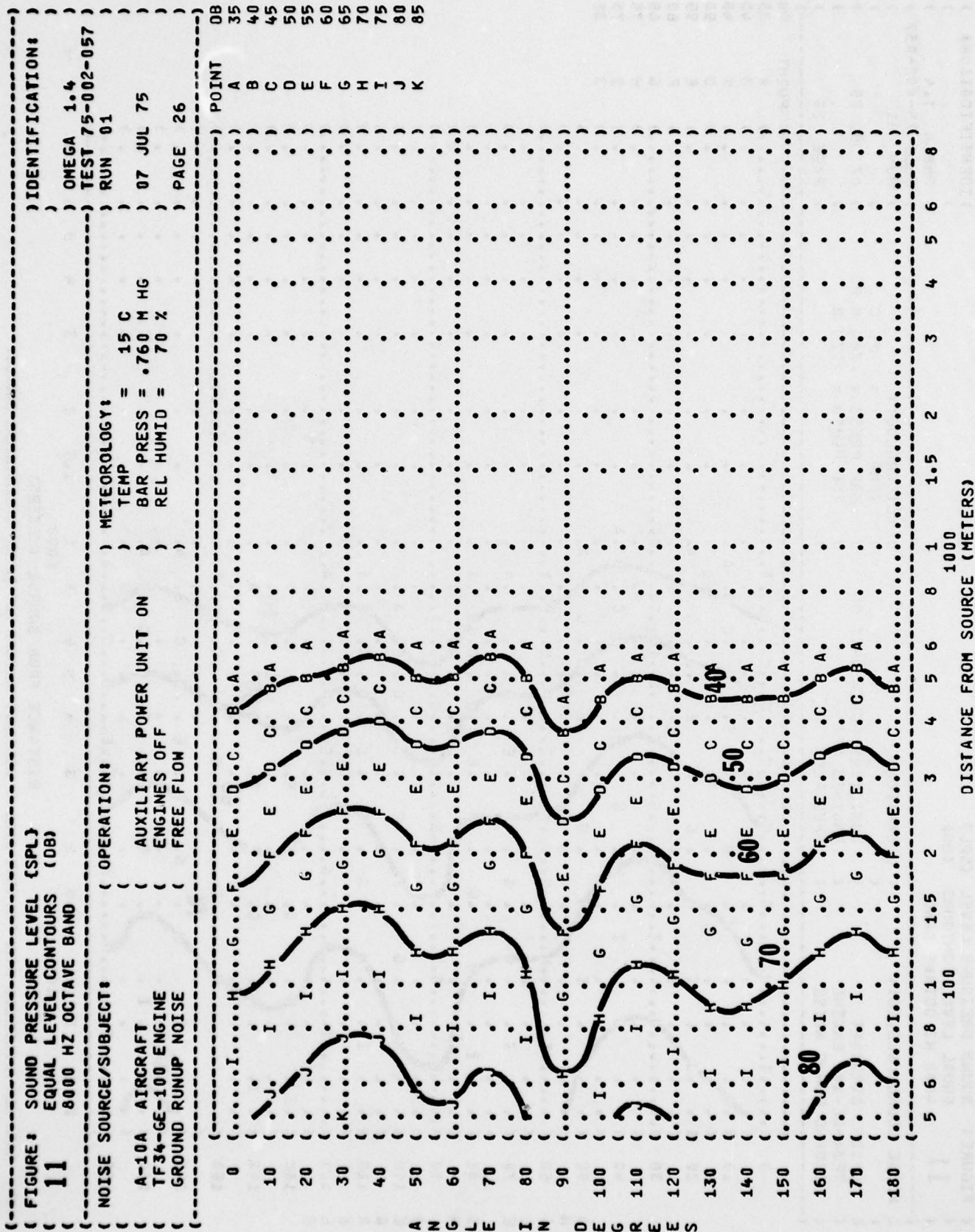
(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (11 EQUAL LEVEL CONTOURS (DB))
 (1000 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 (A-10A AIRCRAFT)
 (TF34-GE-100 ENGINE)
 (GROUND RUNUP NOISE)
 (OPERATION:)
 (AUXILIARY POWER UNIT ON)
 (ENGINES OFF)
 (FREE FLOW)
 (METEOROLOGY:)
 (TEMP = 15 C)
 (BAR PRESS = .760 M HG)
 (REL HUMID = 70 %)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST 75-002-057)
 (RUN 01)
 (07 JUL 75)
 (PAGE 23)



NOTE: DATA ARE APPLICABLE ONLY FOR LEFT SIDE OF AIRCRAFT BECAUSE APU IS AN ASYMMETRICAL SOURCE.



NOTE: DATA ARE APPLICABLE ONLY FOR LEFT SIDE OF AIRCRAFT BECAUSE APU IS AN ASYMMETRICAL SOURCE.



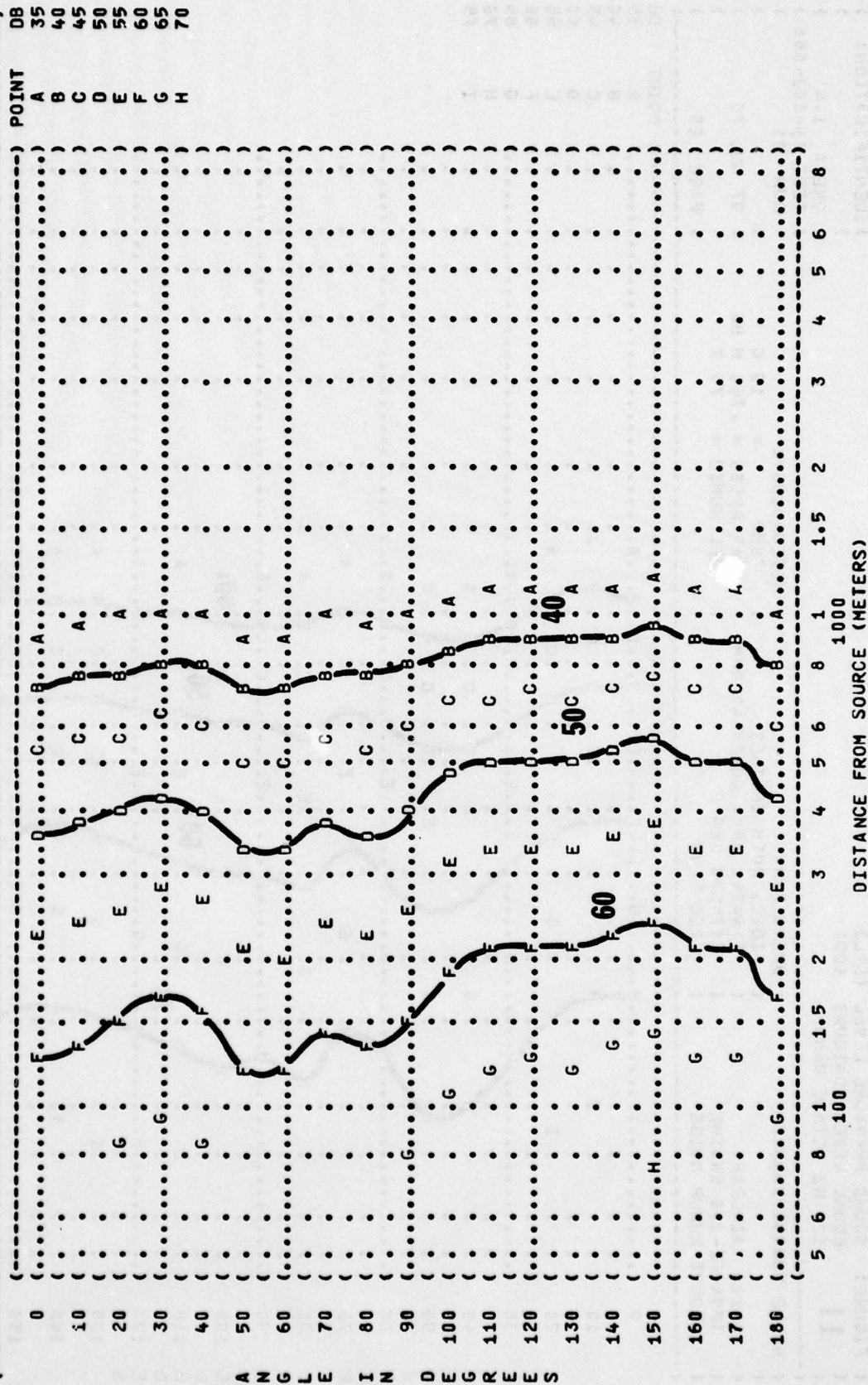
NOTE: DATA ARE APPLICABLE ONLY FOR LEFT SIDE OF AIRCRAFT BECAUSE APU IS AN ASYMMETRICAL SOURCE.

FIGURE: SOUND PRESSURE LEVEL (SPL)
 11 EQUAL LEVEL CONTOURS (DB)
 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
 (IDLE, BOTH ENGINES) TEMP = 15 C
 (FAN=24% RPM, CORE=64% RPM) BAR PRESS = .760 M HG
 (ITT=530 DEG C) REL HUMID = 70 %
 (FREE FLOW))

A-10A AIRCRAFT
 TF34-GE-100 ENGINE
 GROUND RUNUP NOISE

IDENTIFICATION:)
) OMEGA 1.4
) TEST 75-002-058
) RUN 01
) 07 JUL 75
) PAGE 19



A N G L E I N D E G R E E S

(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (11 EQUAL LEVEL CONTOURS (DB))
 (125 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 ((OPERATION:) METEOROLOGY:)
 ((IDLE, BOTH ENGINES) TEMP = 15 C)
 ((FAN=24% RPM, CORE=64% RPM) BAR PRESS = .760 M HG)
 ((ITT=530 DEG C) REL HUMID = 70 %)
 ((FREE FLOW))
 (A-10A AIRCRAFT)
 (TF34-GE-100 ENGINE)
 (GROUND RUNUP NOISE)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST 75-002-050)
 (RUN 01)
 (07 JUL 75)
 (PAGE 20)

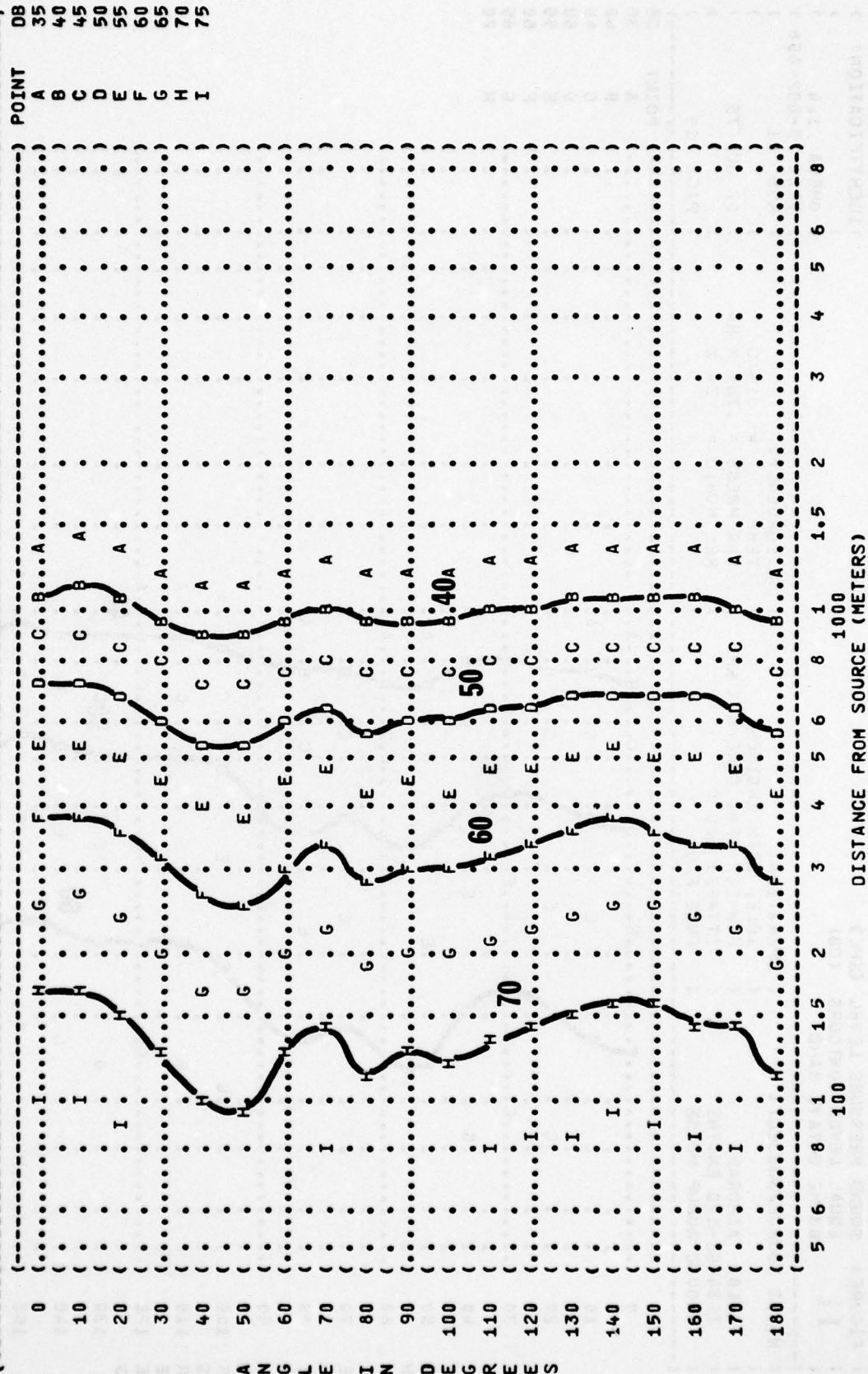
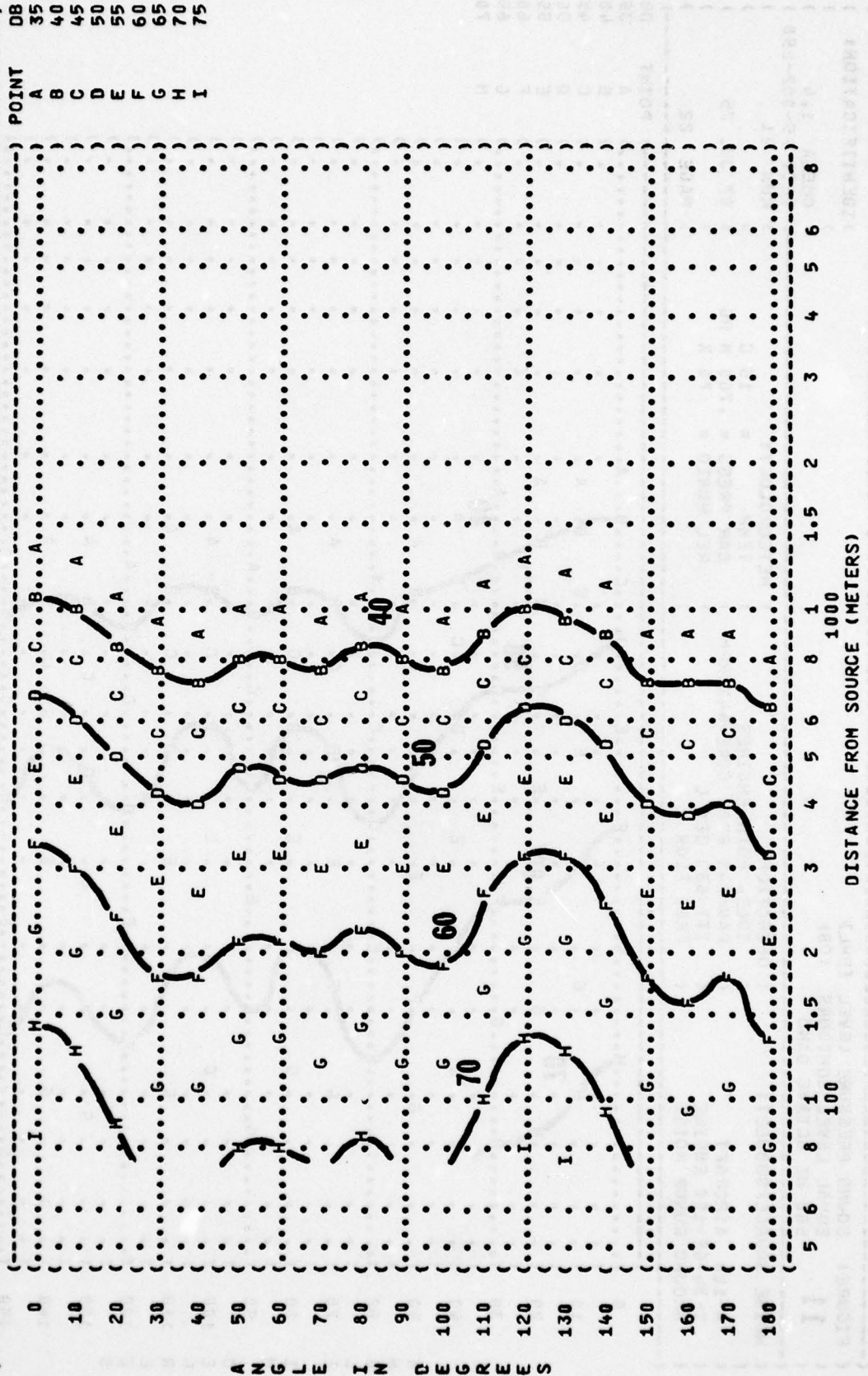
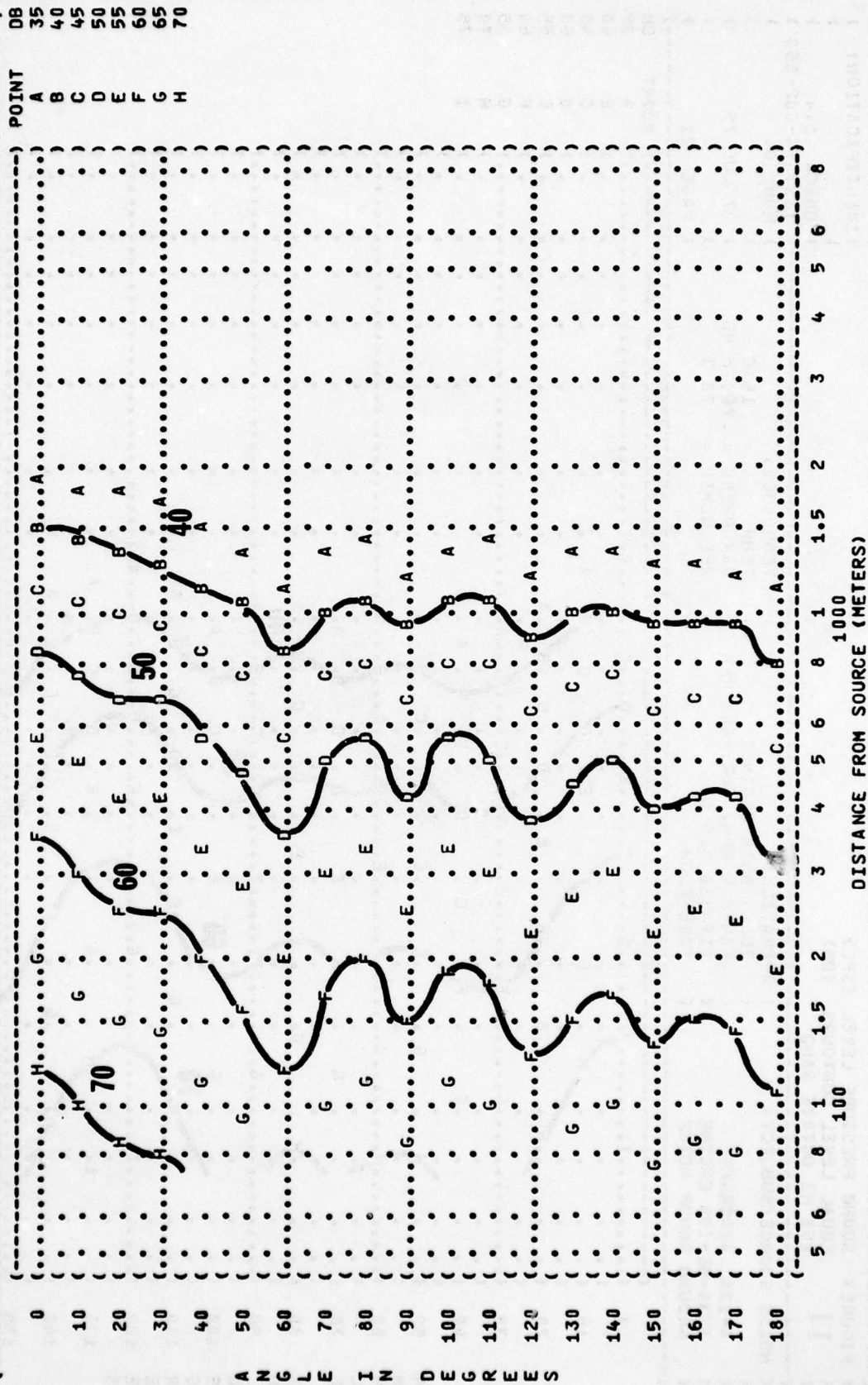


FIGURE: SOUND PRESSURE LEVEL (SPL)
 11 EQUAL LEVEL CONTOURS (DB)
 250 HZ OCTAVE BAND
 NOISE SOURCE/SUBJECT:
 () OPERATION:
 () IDLE, BOTH ENGINES
 () FAN=24% RPM, CORE=64% RPM
 () ITT=530 DEG C
 () FREE FLOW
 A-10A AIRCRAFT
 TF34-GE-100 ENGINE
 GROUND RUNUP NOISE
 METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %
 IDENTIFICATION:
 OMEGA 1.4
 TEST 75-002-058
 RUN 01
 07 JUL 75
 PAGE 21

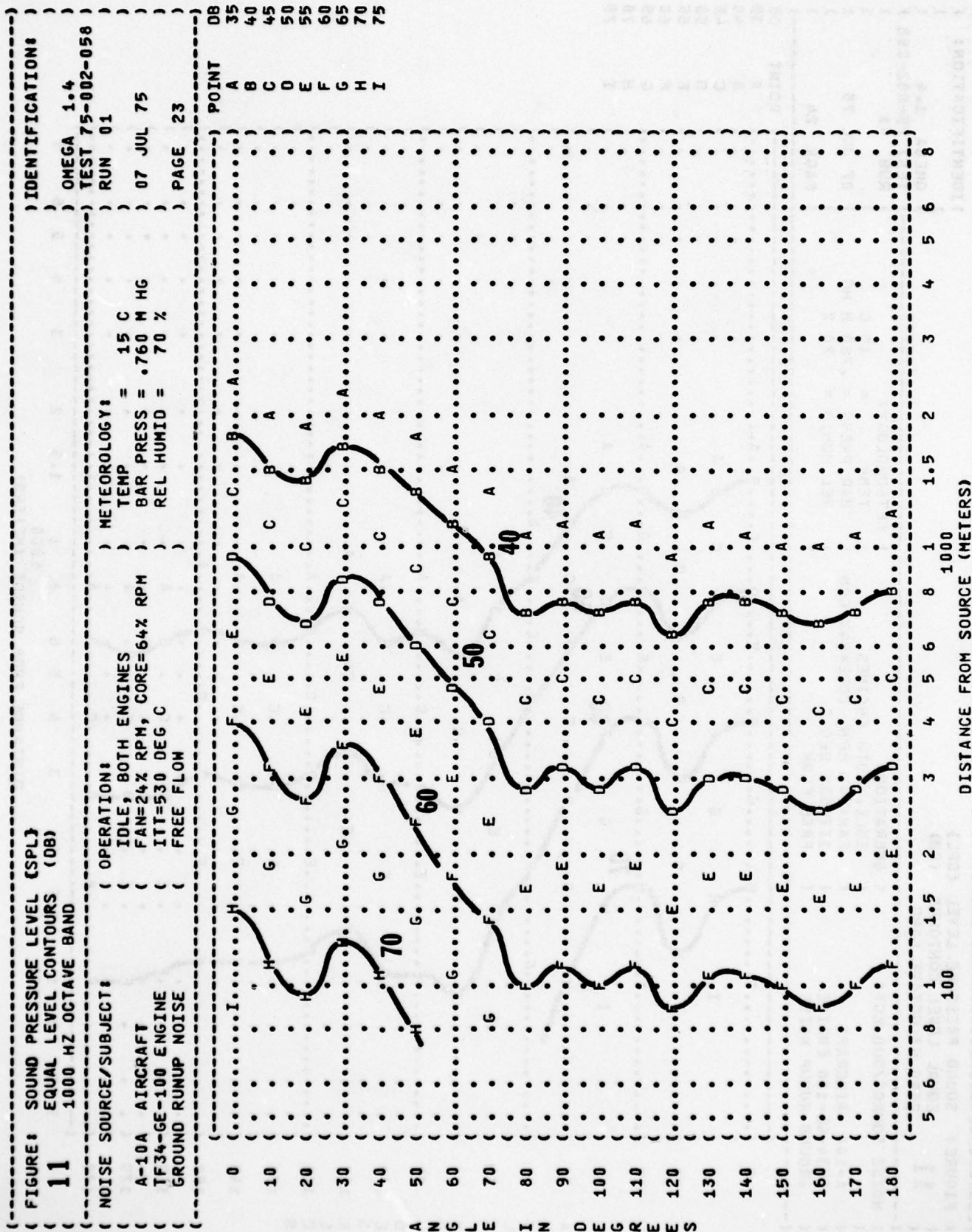


A N G L E I N D E G R E E S

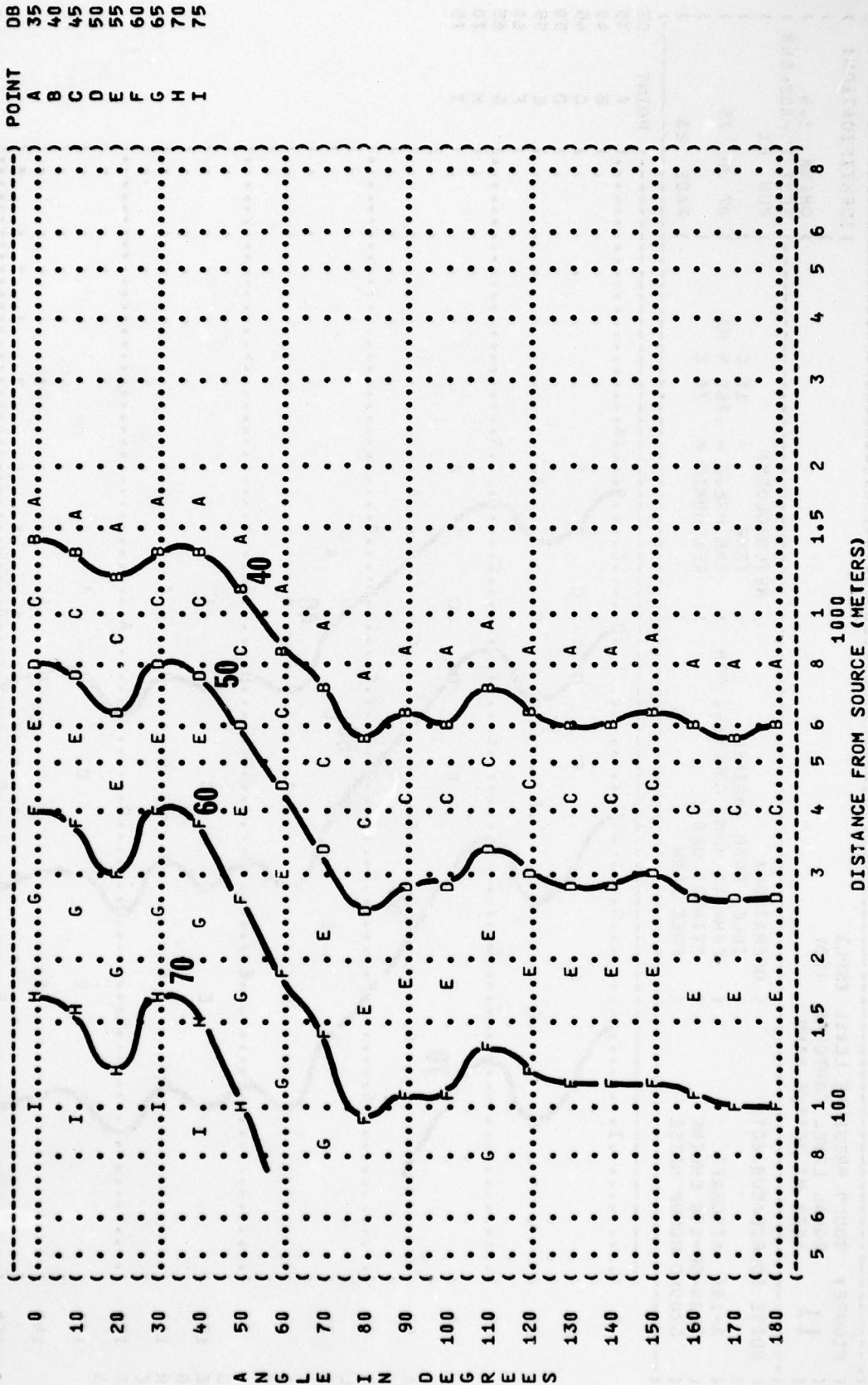
(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (11 EQUAL LEVEL CONTOURS (DB)
 (500 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:
 ((IDLE, BOTH ENGINES) TEMP = 15 C
 ((FAN=24% RPM, CORE=64% RPM) BAR PRESS = .760 M HG
 ((ITT=530 DEG C) REL HUMID = 70 %
 ((FREE FLOW)
 (A-10A AIRCRAFT
 (TF34-GE-100 ENGINE
 (GROUND RUNUP NOISE
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST 75-002-058
 (RUN 01
 (07 JUL 75
 (PAGE 22



A N G L E I N D E G R E E S



(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (11 EQUAL LEVEL CONTOURS (DB))
 (2000 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 (A-10A AIRCRAFT)
 (TF34-GE-100 ENGINE)
 (GROUND RUNUP NOISE)
 (OPERATION:)
 (IDLE, BOTH ENGINES)
 (FAN=24% RPM, CORE=64% RPM)
 (ITT=530 DEG C)
 (FREE FLOW)
 (METEOROLOGY:)
 (TEMP = 15 C)
 (BAR PRESS = .760 M HG)
 (REL HUMID = 70 %)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST 75-002-058)
 (RUN 01)
 (07 JUL 75)
 (PAGE 24)



AD-A053 705

AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO F/G 1/2
USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 72. A-10A AIR--ETC(U)
JAN 77 R 6 POWELL

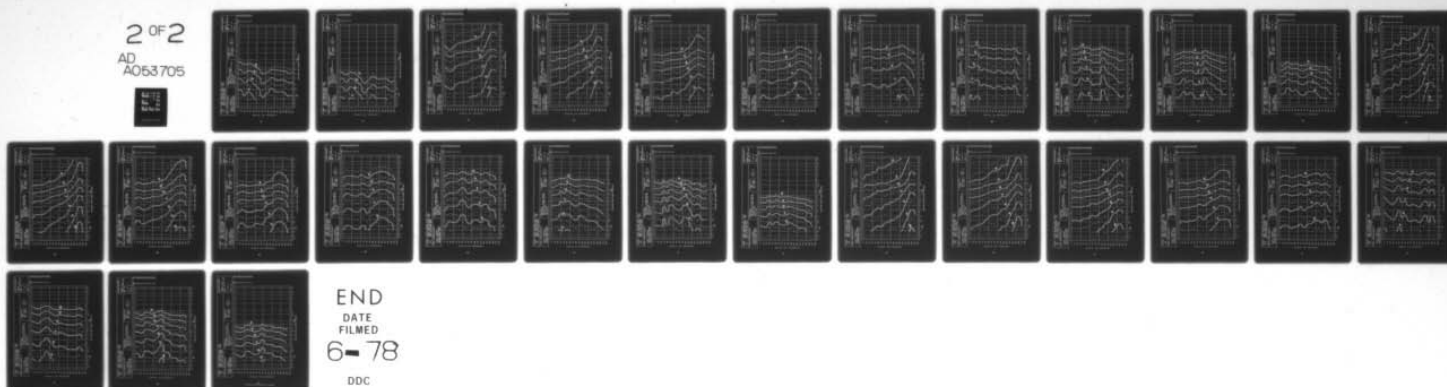
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AMRL-TR-75-50-VOL-72

NL

2 OF 2

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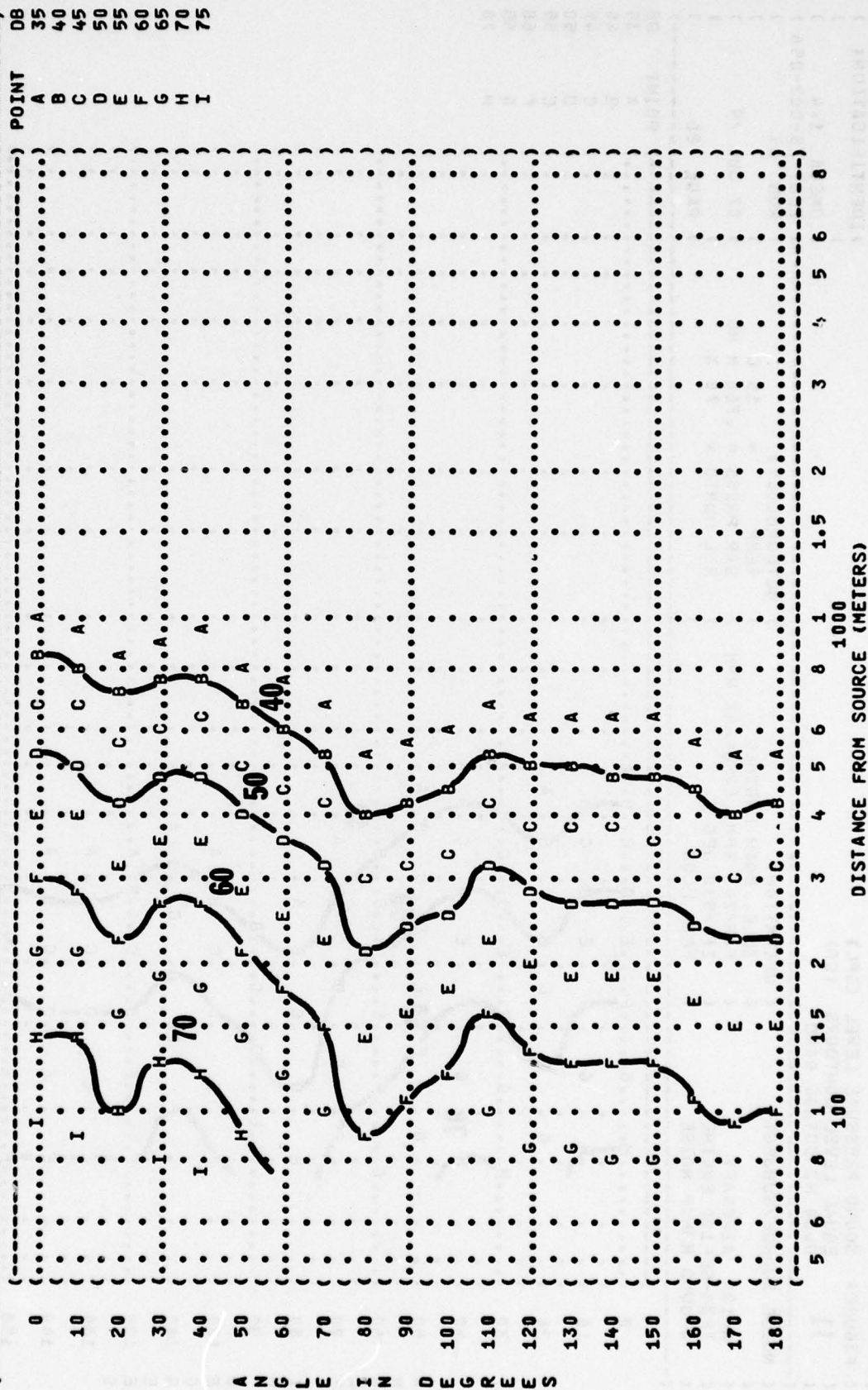
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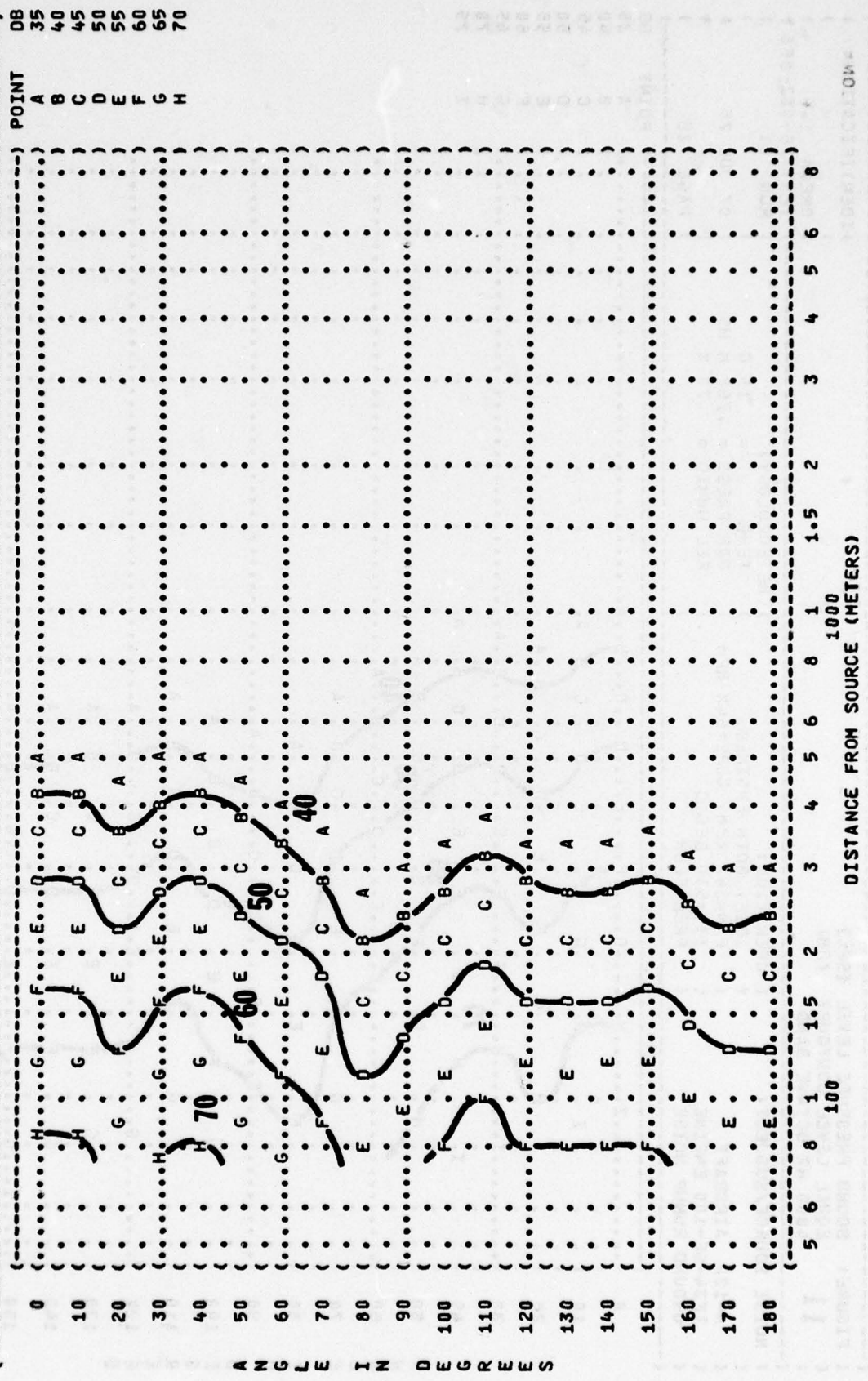
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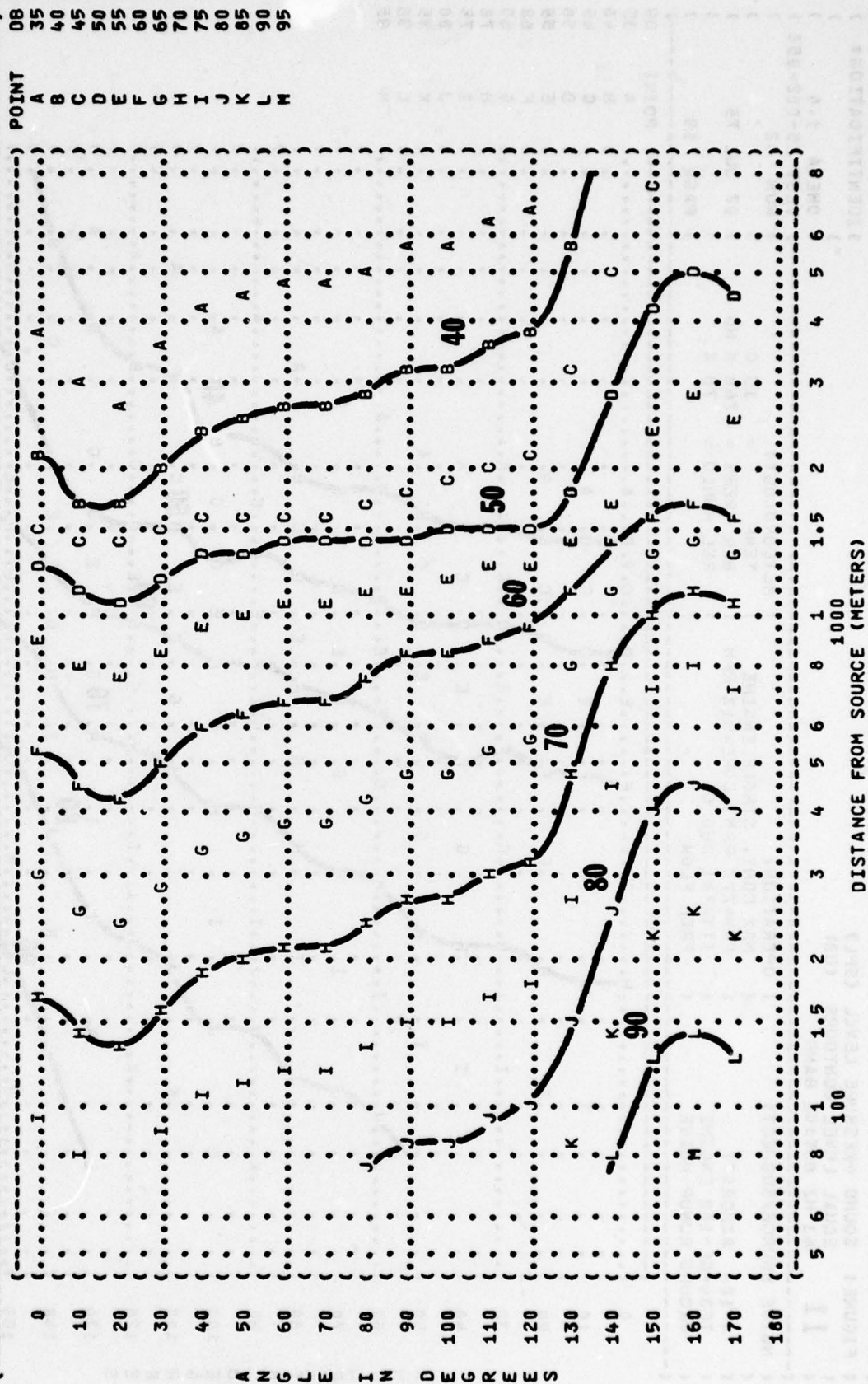
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( FIGURE: SOUND PRESSURE LEVEL {SPL} ) IDENTIFICATION: )
(    11      EQUAL LEVEL CONTOURS (DB) ) )
(    4000 HZ OCTAVE BAND ) OMEGA 1.4 )
(-----)
( NOISE SOURCE/SUBJECT: ) TEST 75-002-058 )
( ) RUN 01 )
( ) )
( ) )
( A-10A AIRCRAFT ) TEMP = 15 C )
( TF34-GE-100 ENGINE ) FAN=24% RPM, CORE=64% RPM ) BAR PRESS = .760 M HG )
( GROUND RUNUP NOISE ) ITT=530 DEG C ) REL HUMID = 70 % )
( FREE FLOW ) )
(-----)
( PAGE 25 )
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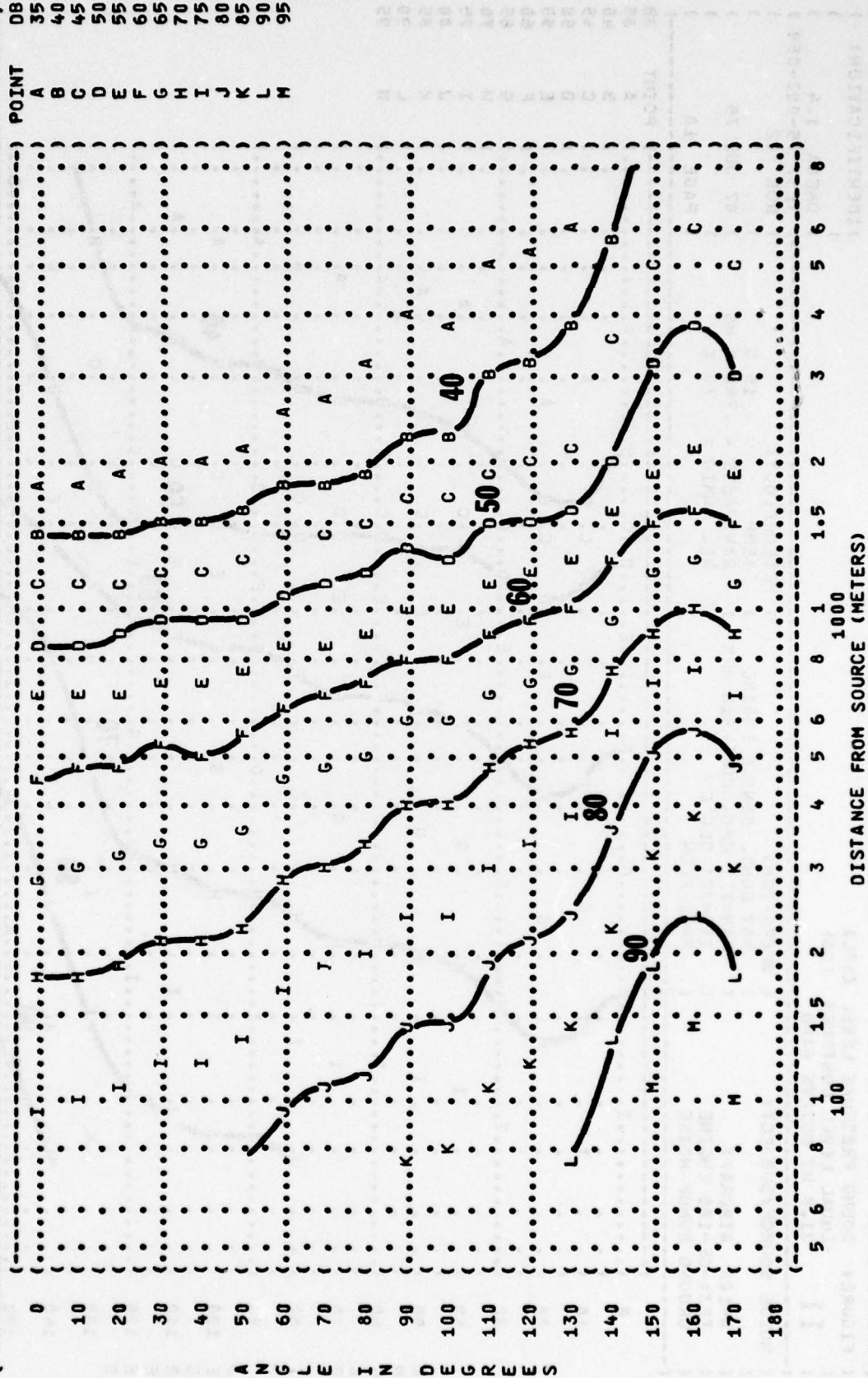
((FIGURE: SOUND PRESSURE LEVEL (SPL)))
 ((11 EQUAL LEVEL CONTOURS (DB)))
 ((8000 HZ OCTAVE BAND))
 ((NOISE SOURCE/SUBJECT:))
 ((OPERATION:))
 ((IDLE, BOTH ENGINES))
 ((FAN=24% RPM, CORE=64% RPM))
 ((ITT=530 DEG C))
 ((FREE FLOW))
 ((A-10A AIRCRAFT))
 ((TF34-GE-100 ENGINE))
 ((GROUND RUNUP NOISE))
 ((METEOROLOGY:))
 ((TEMP = 15 C))
 ((BAR PRESS = .760 M HG))
 ((REL HUMID = 70 %))
 ((IDENTIFICATION:))
 ((OMEGA 1.4))
 ((TEST 75-002-058))
 ((RUN 01))
 ((07 JUL 75))
 ((PAGE 26))



(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (EQUAL LEVEL CONTOURS (DB)
 (11 31.5 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT:
 (OPERATION:
 (MAX CONT. SINGLE ENGINE
 (FAN=77% RPM, CORE=91% RPM
 (ITT=731 DEG C
 (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST 75-002-058
 (RUN 02
 (07 JUL 75
 (PAGE 18



((FIGURE: SOUND PRESSURE LEVEL (SPL)))
 ((11 EQUAL LEVEL CONTOURS (DB)))
 ((63 HZ OCTAVE BAND))
 ((NOISE SOURCE/SUBJECT:))
 ((OPERATION:))
 ((MAX CONT. SINGLE ENGINE))
 ((FAN=77% RPM, CORE=91% RPM))
 ((TF34-GE-100 ENGINE))
 ((GROUND RUNUP NOISE))
 ((FREE FLOW))
 ((METEOROLOGY:))
 ((TEMP = 15 C))
 ((BAR PRESS = .760 M HG))
 ((REL HUMID = 70 %))
 ((OMEGA 1.4))
 ((TEST 75-002-058))
 ((RUN 02))
 ((07 JUL 75))
 ((PAGE 19))



(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (11 EQUAL LEVEL CONTOURS (DB)
 (125 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
 (A-10A AIRCRAFT (MAX CONT. SINGLE ENGINE) TEMP = 15 C
 (TF34-GE-100 ENGINE (FAN=77% RPM, CORE=91% RPM) BAR PRESS = .760 M HG
 (GROUND RUNUP NOISE (ITT=731 DEG C) REL HUMID = 70 %
 ((FREE FLOW))
 (IDENTIFICATION:)
 (OMEGA 1.4
 (TEST 75-002-058)
 (RUN 02)
 (07 JUL 75)
 (PAGE 20)

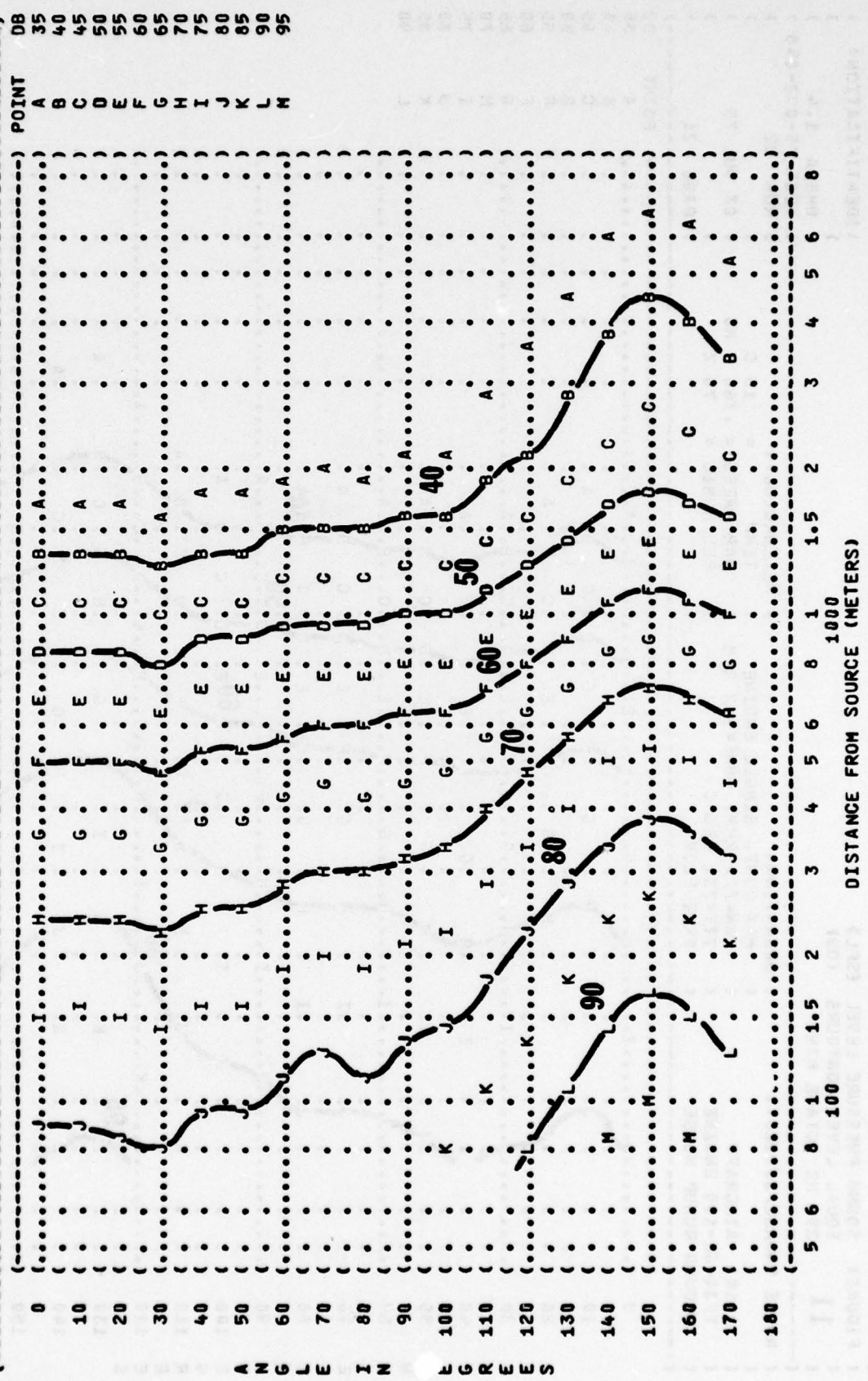
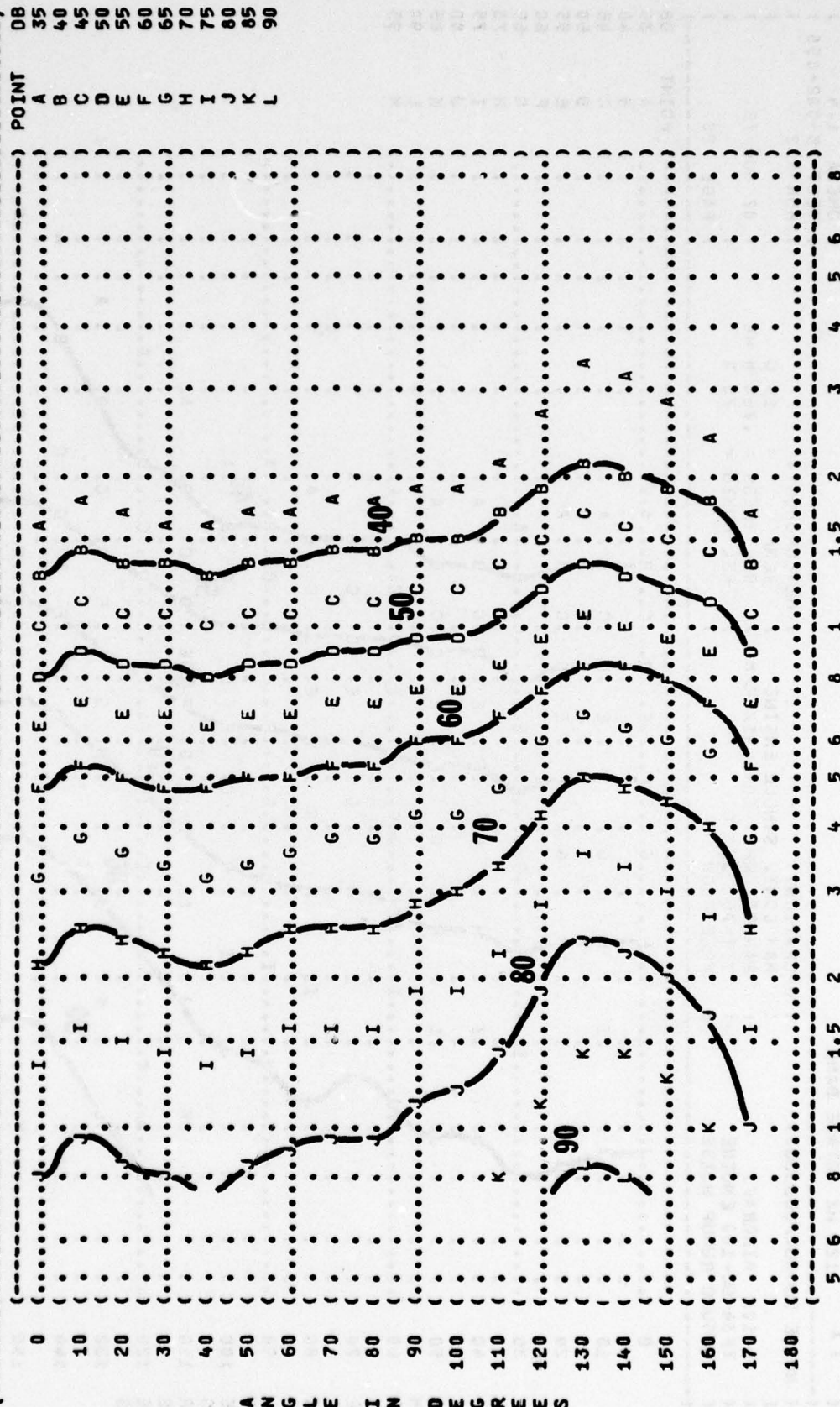


FIGURE: SOUND PRESSURE LEVEL (SPL)
 11 EQUAL LEVEL CONTOURS (DB)
 250 HZ OCTAVE BAND

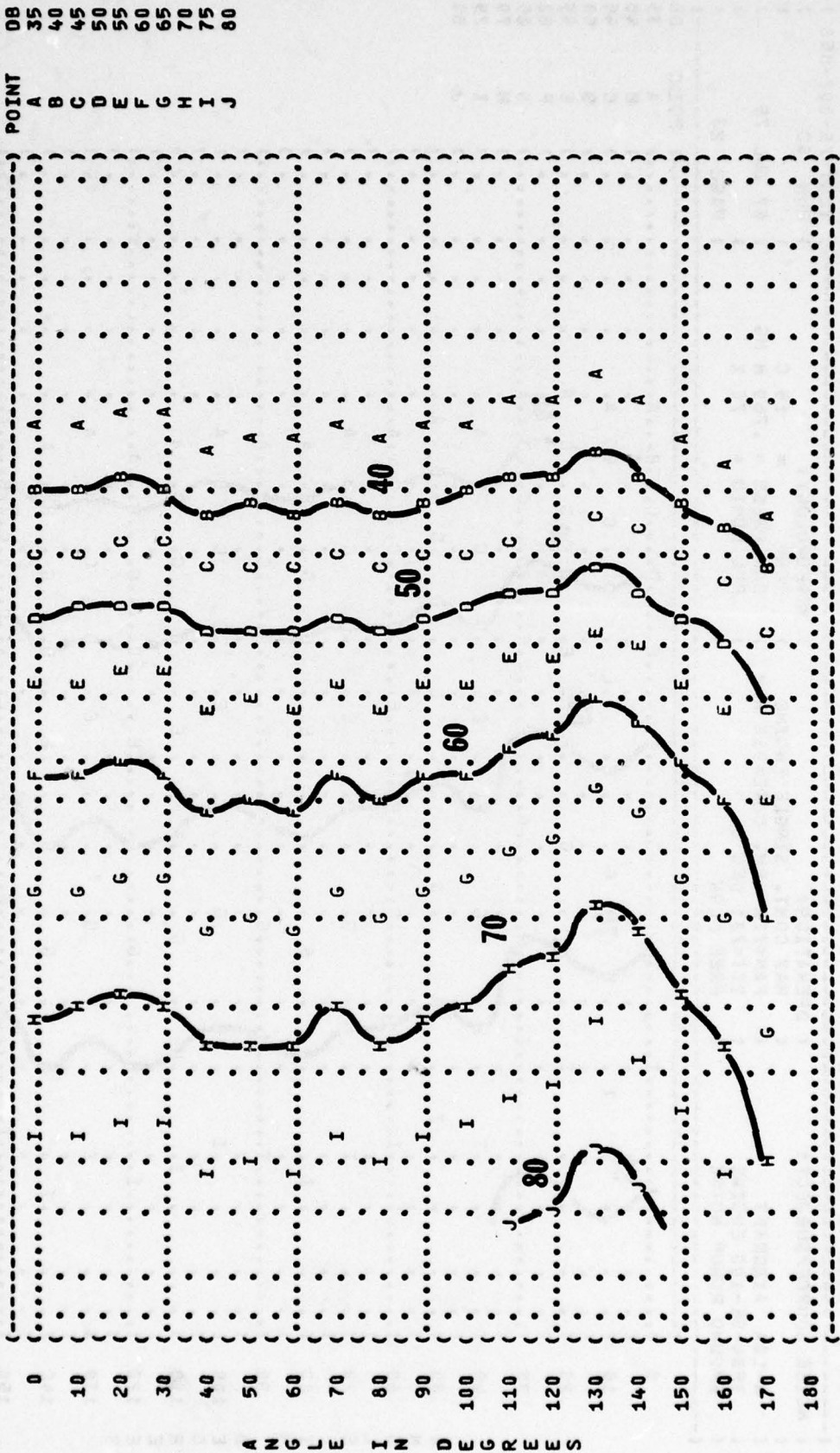
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 () MAX CONT. SINGLE ENGINE () TEMP = 15 C
 () A-10A AIRCRAFT () FAN=77% RPM, CORE=91% RPM () BAR PRESS = .760 M HG
 () TF34-GE-100 ENGINE () ITT=731 DEG C () REL HUMID = 70 %
 () GROUND RUNUP NOISE () FREE FLOW () PAGE 21

IDENTIFICATION: ()
 () OMEGA 1.4
 () TEST 75-002-058
 () RUN 02



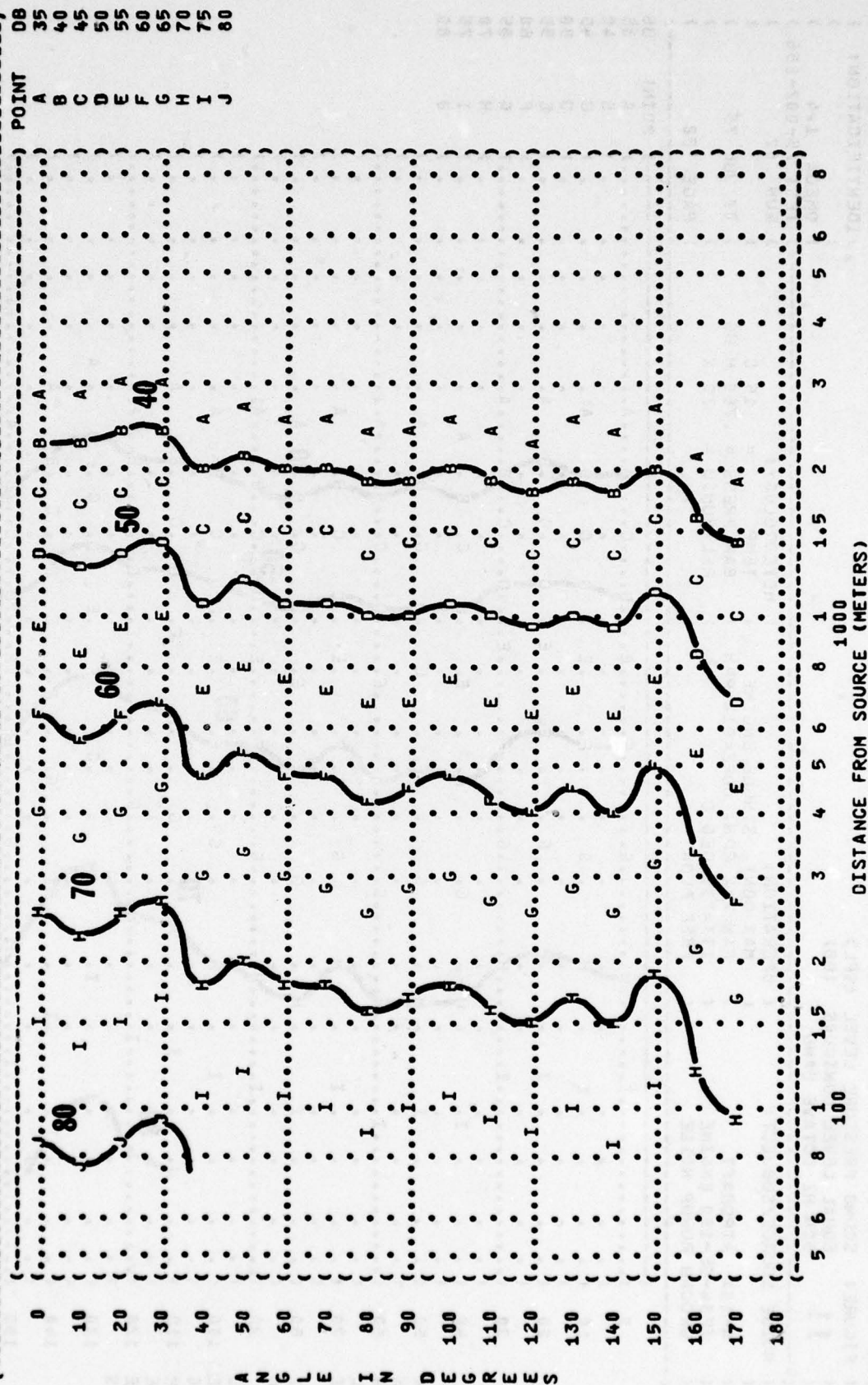
DISTANCE FROM SOURCE (METERS)

(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (11 EQUAL LEVEL CONTOURS (DB)
 (500 HZ OCTAVE BAND
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 (A-10A AIRCRAFT
 (TF34-GE-100 ENGINE
 (GROUND RUNUP NOISE
 (OPERATION:
 (MAX CONT. SINGLE ENGINE
 (FAN=77% RPM, CORE=91% RPM
 (ITT=731 DEG C
 (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST 75-002-058
 (RUN 02
 (07 JUL 75
 (PAGE 22

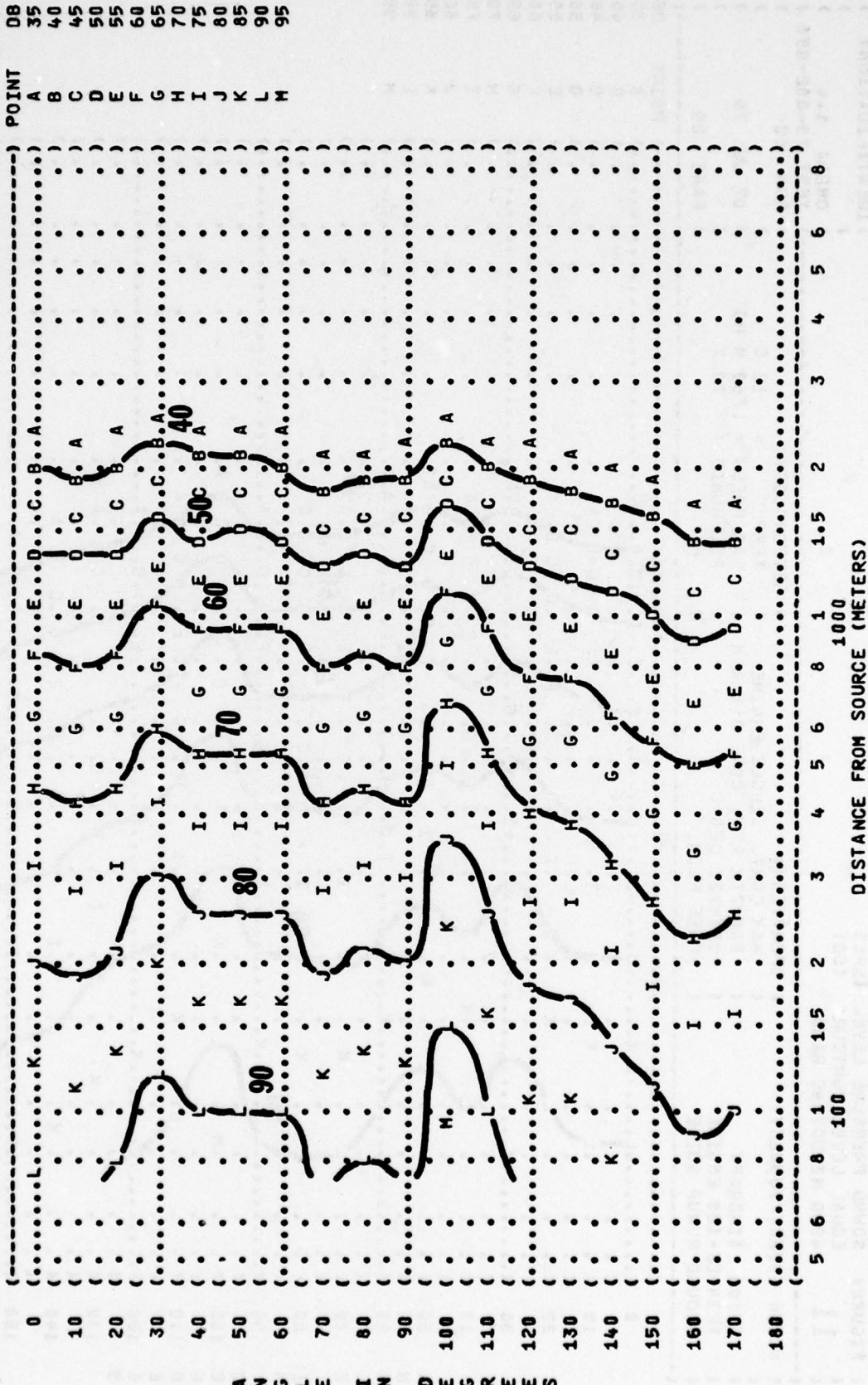


DB 35 40 45 50 55 60 65 70 75 80
 POINT A B C D E F G H I J
 DISTANCE FROM SOURCE (METERS)
 5 6 8 1 1.5 2 3 4 5 6 8
 100 1000

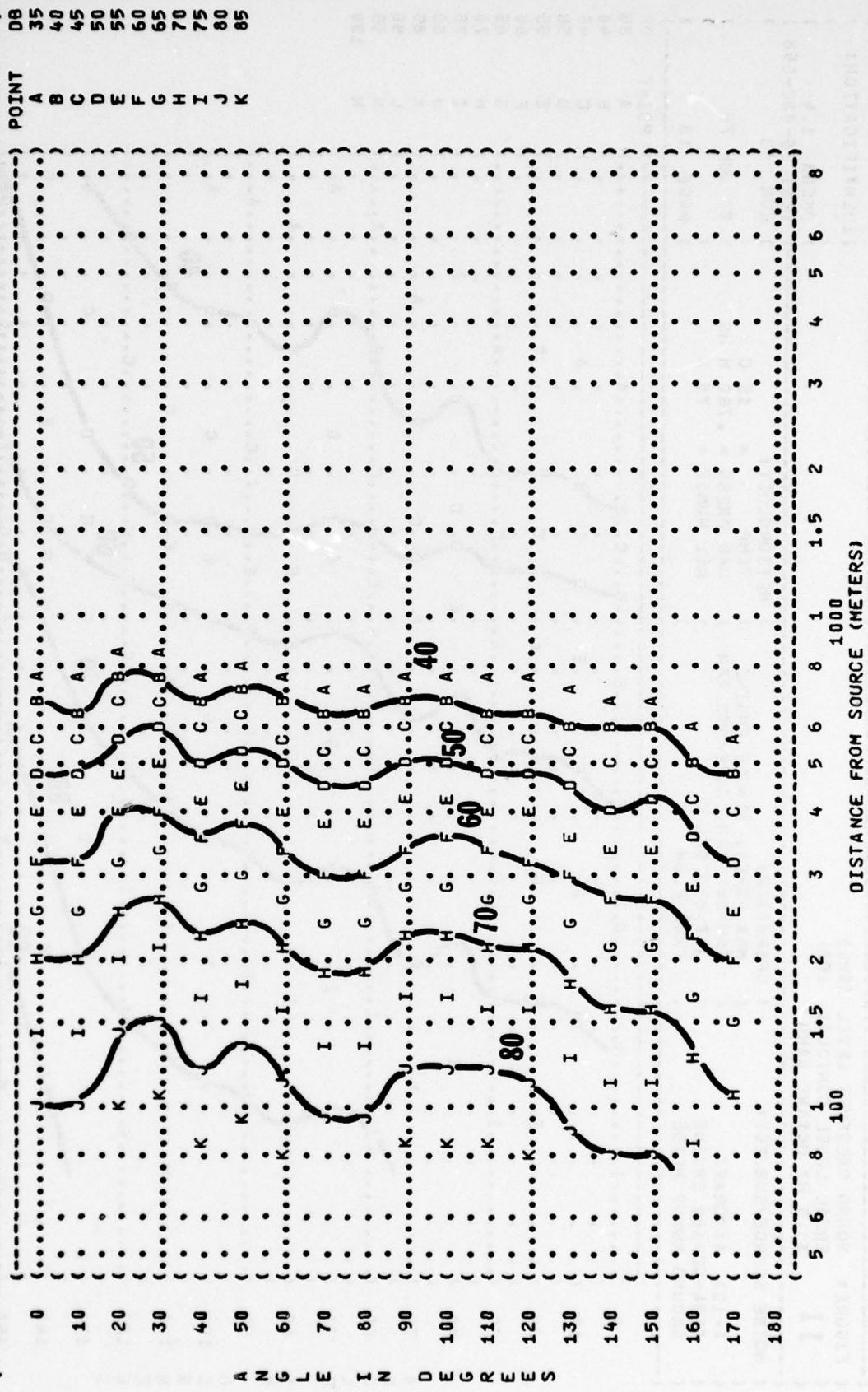
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 (1000 HZ OCTAVE BAND)
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 ((MAX CONT. SINGLE ENGINE) TEMP = 15 C)
 ((FAN=77% RPM, CORE=91% RPM) BAR PRESS = .760 M HG)
 ((ITT=731 DEG C) REL HUMID = 70 %)
 ((FREE FLOW))
 (A-10A AIRCRAFT)
 (TF34-GE-100 ENGINE)
 (GROUND RUNUP NOISE)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST 75-002-050)
 (RUN 02)
 (07 JUL 75)
 (PAGE 23)



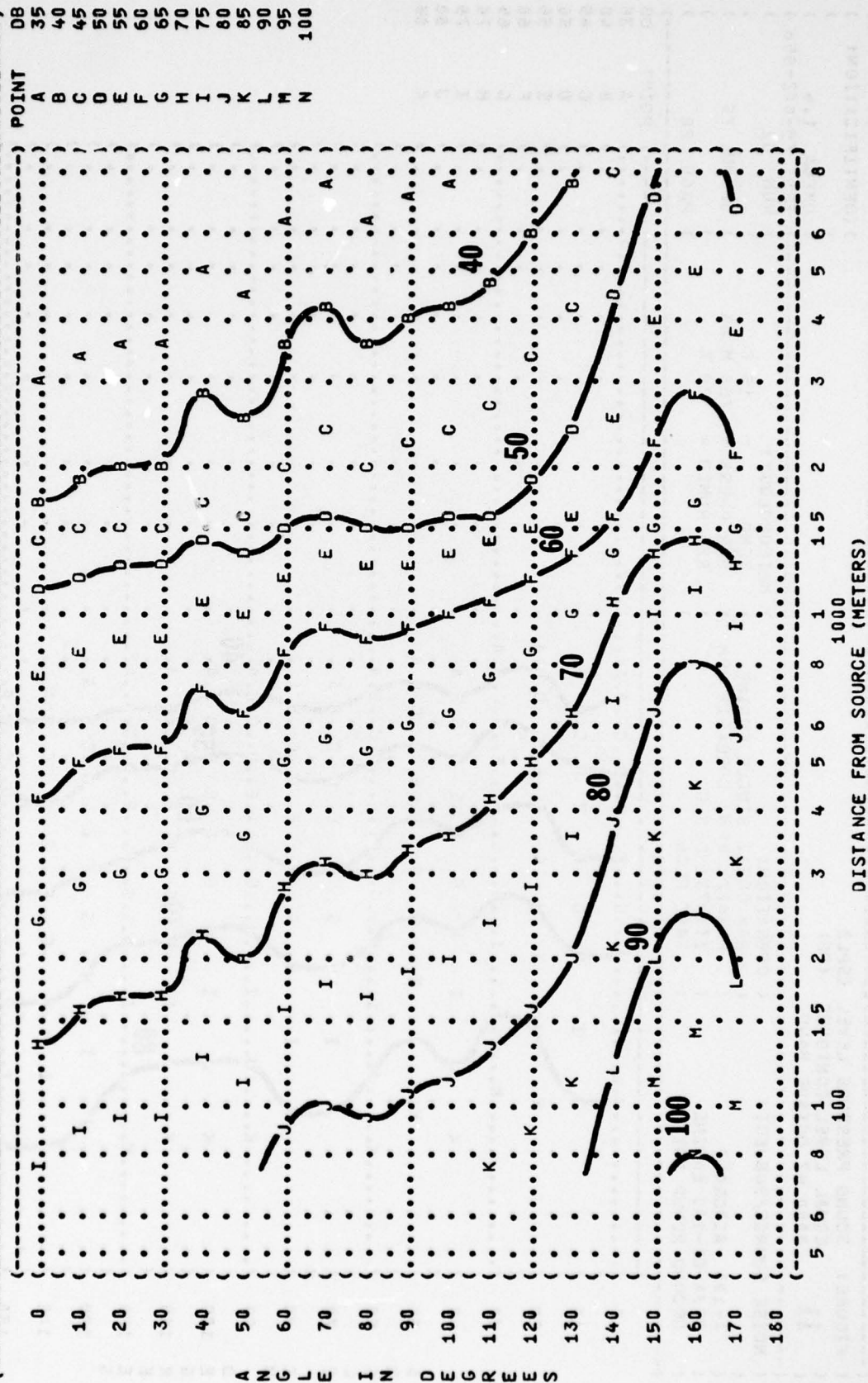
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 (11 EQUAL LEVEL CONTOURS (DB))
 (2000 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
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 (TF34-GE-100 ENGINE)
 (GROUND RUNUP NOISE)
 (OPERATION:)
 (MAX CONT. SINGLE ENGINE)
 (FAN=77% RPM, CORE=91% RPM)
 (ITT=731 DEG C)
 (FREE FLOW)
 (METEOROLOGY:)
 (TEMP = 15 C)
 (BAR PRESS = .760 M HG)
 (REL HUMID = 70 %)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST 75-002-058)
 (RUN 02)
 (07 JUL 75)
 (PAGE 24)



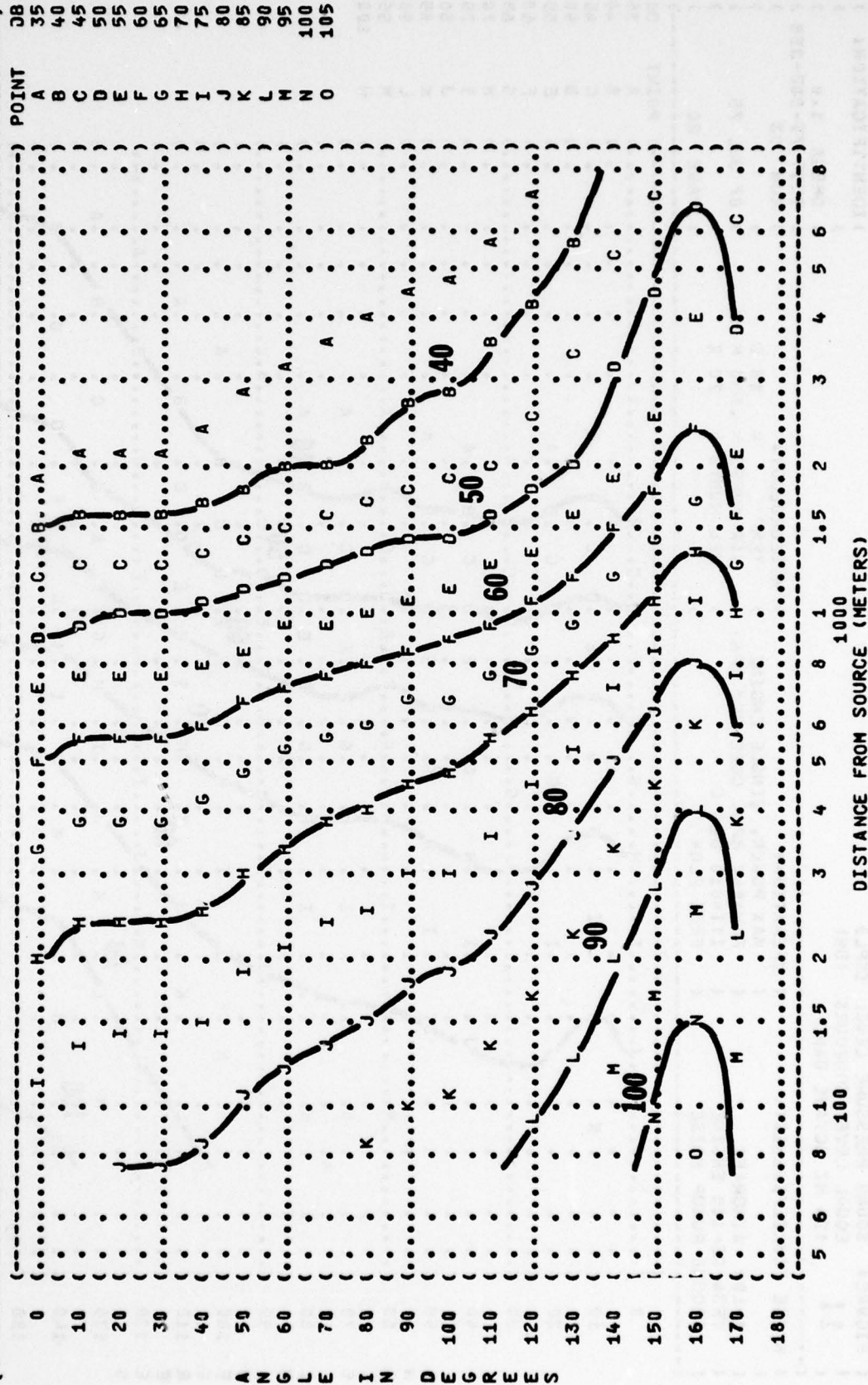
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 (8000 HZ OCTAVE BAND
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 ((FAN=77% RPM, CORE=91% RPM) BAR PRESS = .760 M HG
 ((ITT=731 DEG C) REL HUMID = 70 %
 ((FREE FLOW)
 (NOISE SOURCE/SUBJECT:
 (A-10A AIRCRAFT
 (TF34-GE-100 ENGINE
 (GROUND RUNUP NOISE
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST 75-002-058
 (RUN 02
 (07 JUL 75
 (PAGE 26



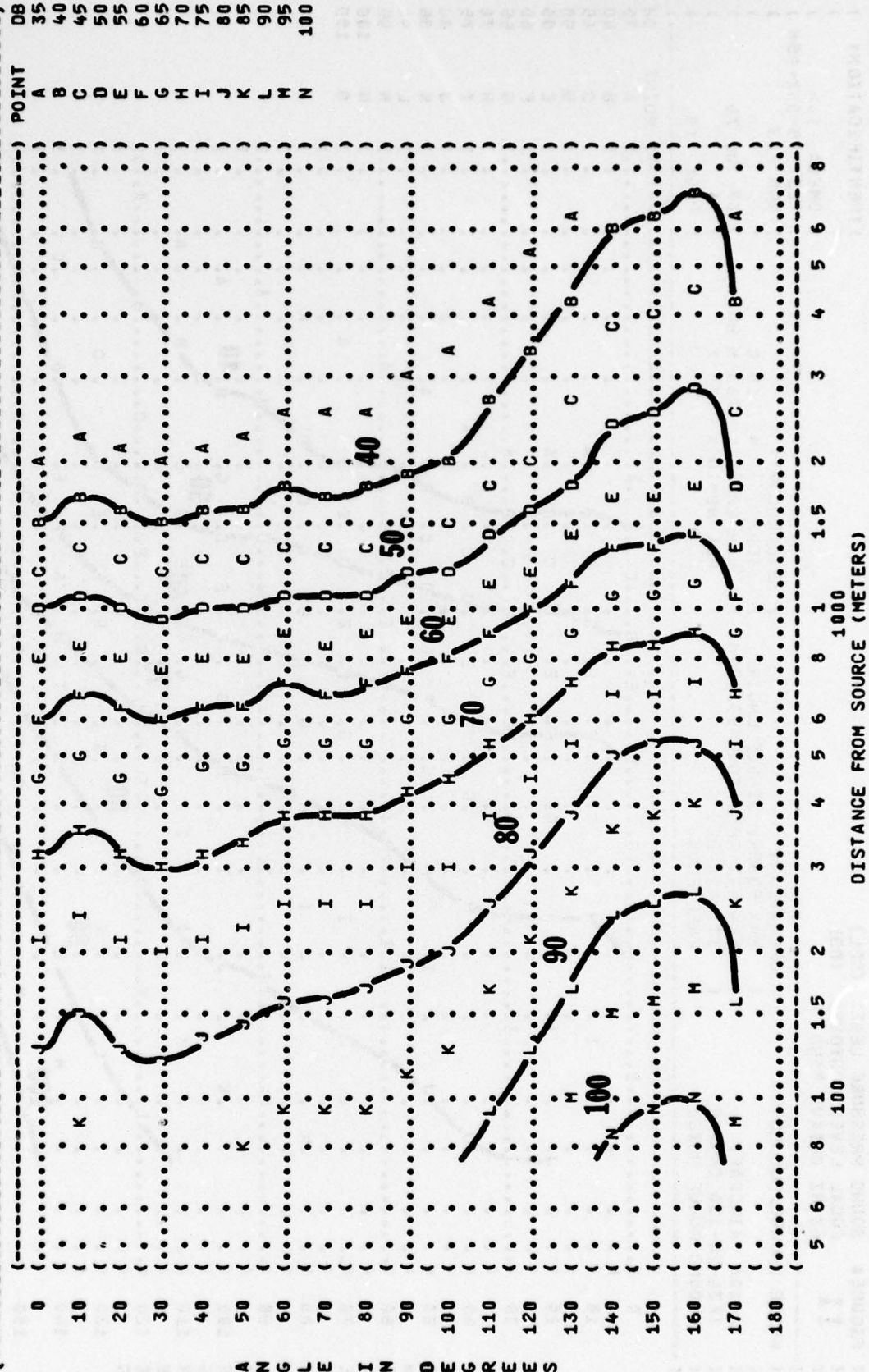
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( FIGURE: SOUND PRESSURE LEVEL {SPL} ) IDENTIFICATION: )
( EQUAL LEVEL CONTOURS (DB) ) )
( 11 ) OMEGA 1.4 )
( 31.5 HZ OCTAVE BAND ) TEST 75-002-058 )
( NOISE SOURCE/SUBJECT: ) METEOROLOGY: ) RUN 03 )
( OPERATION: ) )
( MAX POWER, SINGLE ENGINE ) TEMP = 15 C )
( FAN=84% RPM, CORE=95% RPM ) BAR PRESS = .760 M HG )
( ITT=810 DEG C ) REL HUMID = 70 % )
( FREE FLOW ) ) PAGE 18 )
(A-10A AIRCRAFT )
(TF34-GE-100 ENGINE )
(GROUND RUNUP NOISE )
```



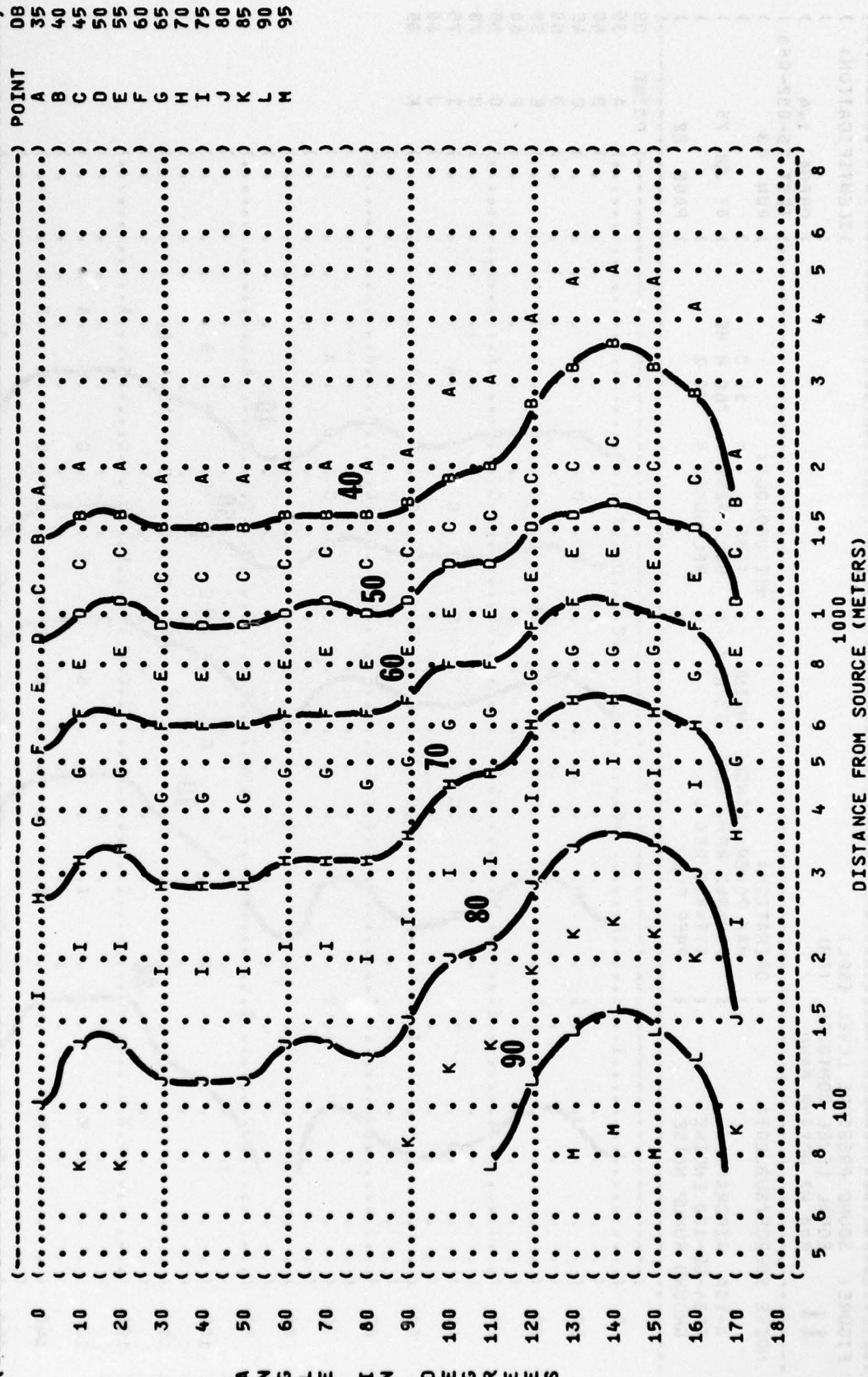
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 (63 HZ OCTAVE BAND
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 ((FAN=84% RPM, CORE=95% RPM
 ((ITT=810 DEG C
 ((FREE FLOW
 ((METEOROLOGY:
 ((TEMP = 15 C
 ((BAR PRESS = .760 M HG
 ((REL HUMID = 70 %
 ((IDENTIFICATION:
 (OMEGA 1.4
 (TEST 75-002-058
 (RUN 03
 (07 JUL 75
 (PAGE 19



(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (11 EQUAL LEVEL CONTOURS (DB))
 (125 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 (OPERATION:)
 (MAX POWER, SINGLE ENGINE)
 (FAN=84% RPM, CORE=95% RPM)
 (TF34-GE-100 ENGINE)
 (GROUND RUNUP NOISE)
 (METEOROLOGY:)
 (TEMP = 15 C)
 (BAR PRESS = .760 M HG)
 (REL HUMID = 70 %)
 (FREE FLOW)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST 75-002-058)
 (RUN 03)
 (07 JUL 75)
 (PAGE 20)

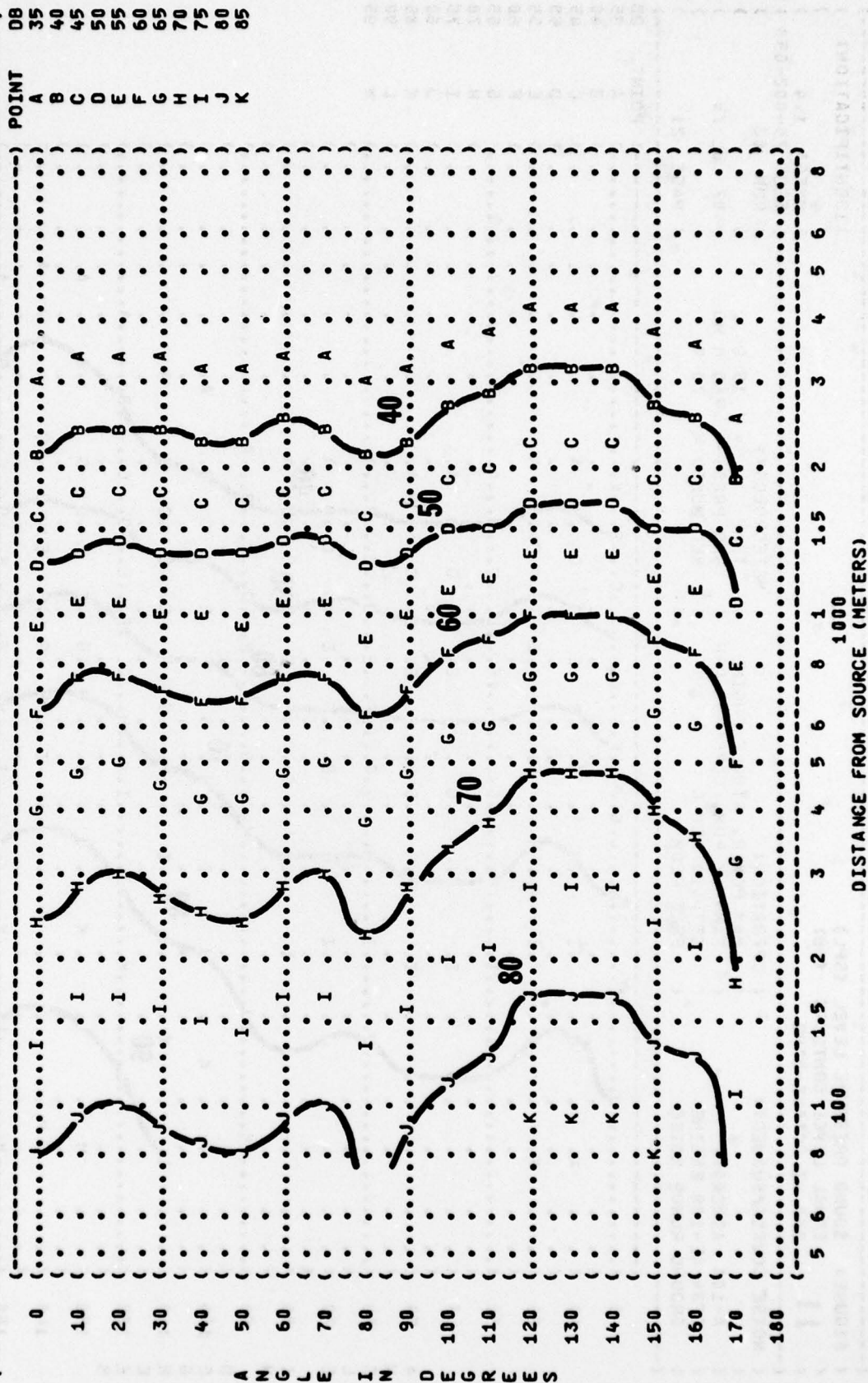


(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (11 EQUAL LEVEL CONTOURS (DB)
 (250 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT:
 (A-10A AIRCRAFT
 (TF34-GE-100 ENGINE
 (GROUND RUNUP NOISE
 (OPERATION:
 (MAX POWER, SINGLE ENGINE
 (FAN=84% RPM, CORF=95% RPM
 (ITT=810 DEG C
 (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST 75-002-058
 (RUN 03
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 (PAGE 21

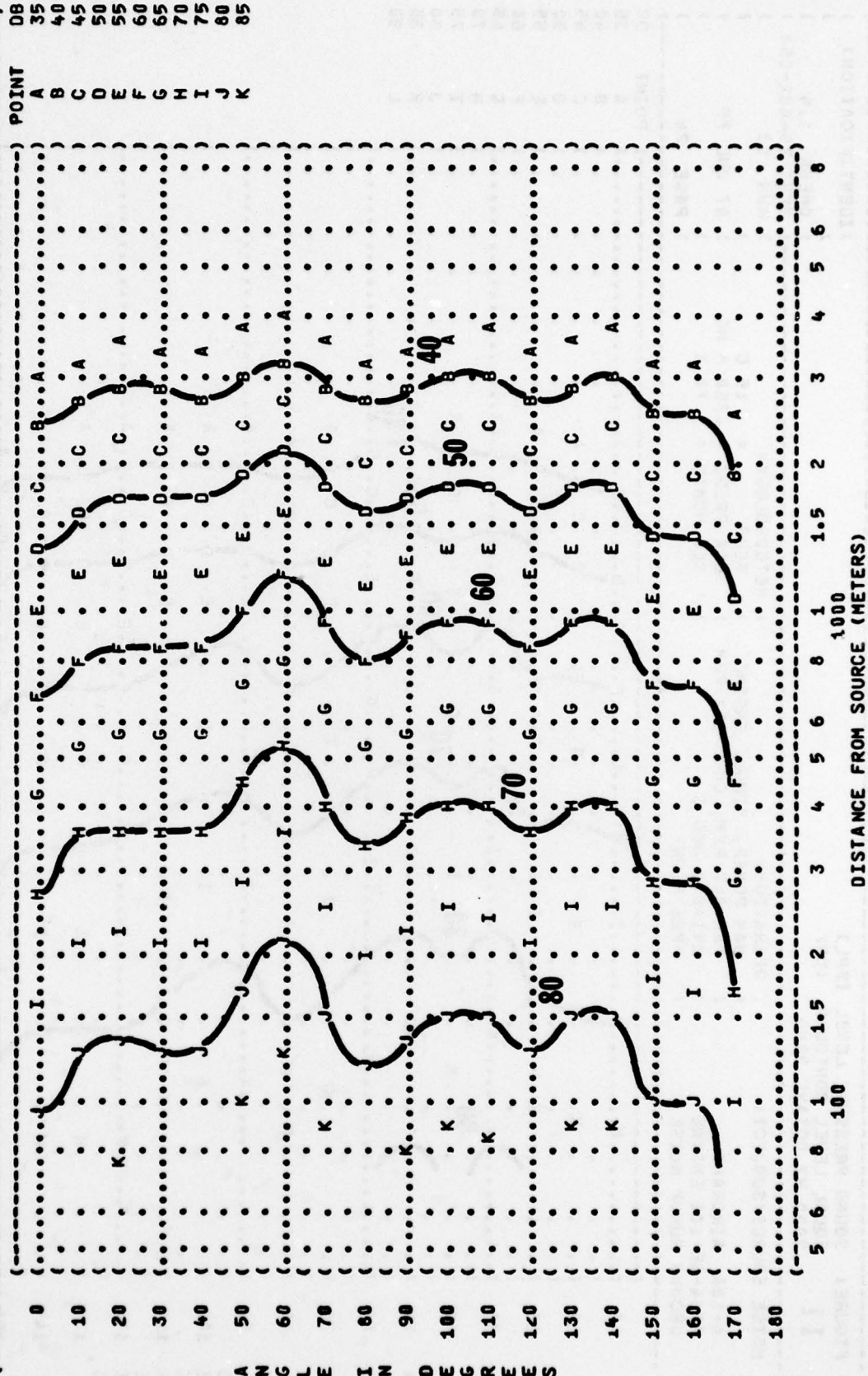


ANGL E I N O E G R E E S

(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (11 EQUAL LEVEL CONTOURS (DB))
 (500 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 ((OPERATION:) METEOROLOGY:)
 ((MAX POWER, SINGLE ENGINE) TEMP = 15 C)
 ((FAN=84% RPM, CORE=95% RPM) BAR PRESS = .760 M HG)
 ((ITT=810 DEG C) REL HUMID = 70 %)
 ((FREE FLOW))
 (A-10A AIRCRAFT)
 (TF34-GE-100 ENGINE)
 (GROUND RUNUP NOISE)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST 75-002-058)
 (RUN 03)
 (07 JUL 75)
 (PAGE 22)



(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (11 EQUAL LEVEL CONTOURS (DB))
 (1000 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 ((OPERATION:) METEOROLOGY:)
 ((MAX POWER, SINGLE ENGINE) TEMP = 15 C)
 ((FAN=84% RPM, CORE=95% RPM) BAR PRESS = .760 M HG)
 ((ITT=810 DEG C) REL HUMID = 70 %)
 ((FREE FLOW))
 (A-10A AIRCRAFT)
 (TF34-GE-100 ENGINE)
 (GROUND RUNUP NOISE)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST 75-002-058)
 (RUN 03)
 (07 JUL 75)
 (PAGE 23)



IDENTIFICATION: OMEGA 1.4

OMEGA 1.4

METEOROLOGY:

TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

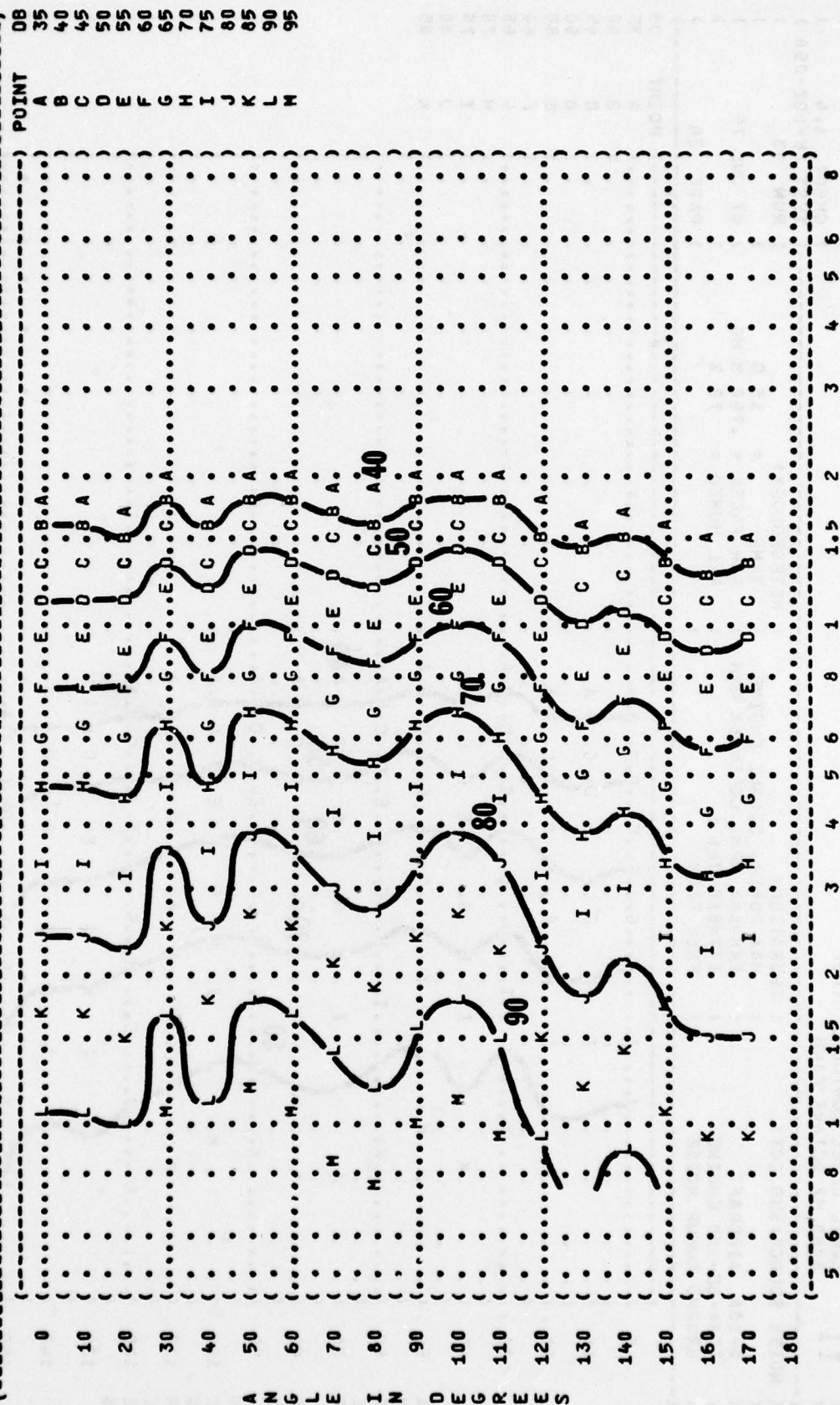
PAGE 24

POINT

ANGLE IN DEGREES

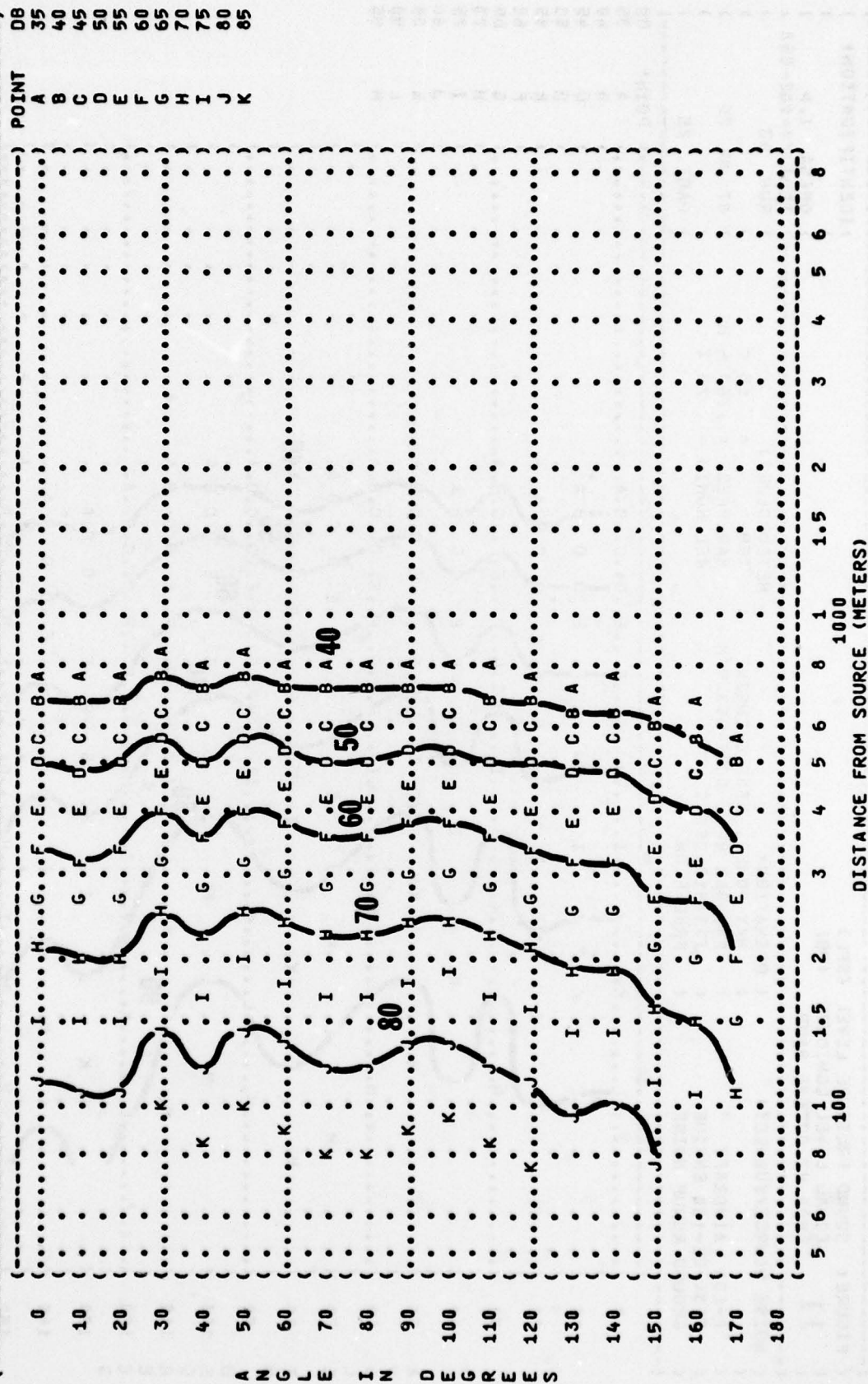
DISTANCE FROM SOURCE (METERS)

(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (11 EQUAL LEVEL CONTOURS (DB))
 (4000 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 (OPERATION:)
 (MAX POWER, SINGLE ENGINE)
 (FAN=84% RPM, CORE=95% RPM)
 (ITT=810 DEG C)
 (FREE FLOW)
 (METEOROLOGY:)
 (TEMP = 15 C)
 (BAR PRESS = .760 M HG)
 (REL HUMID = 70 %)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST 75-002-058)
 (RUN 03)
 (07 JUL 75)
 (PAGE 25)

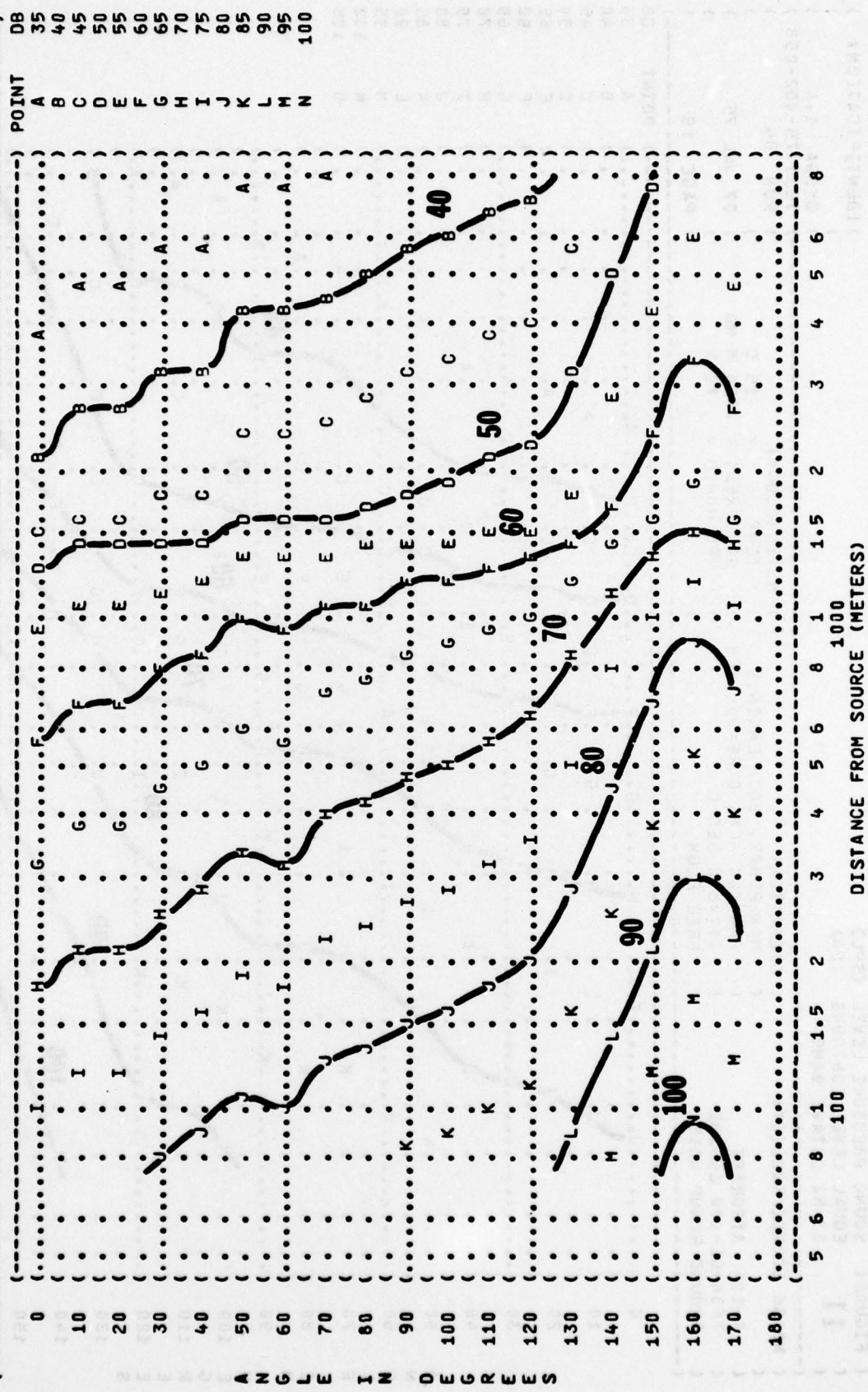


DISTANCE FROM SOURCE (METERS)


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(-----)
( FIGURE: SOUND PRESSURE LEVEL {SPL} ) IDENTIFICATION: )
(    11 EQUAL LEVEL CONTOURS (DB) ) )
(      8000 HZ OCTAVE BAND ) OMEGA 1.4 )
( ) TEST 75-002-058 )
( NOISE SOURCE/SUBJECT: ) METEOROLOGY: ) RUN 03 )
( ) ) ) )
( A-10A AIRCRAFT ) MAX POWER, SINGLE ENGINE ) TEMP = 15 C )
( TF34-GE-100 ENGINE ) FAN=84% RPM, CORE=95% RPM ) BAR PRESS = .760 M HG )
( GROUND RUNUP NOISE ) ITT=810 DEG C ) REL HUMID = 70 % )
( ) FREE FLOW ) ) PAGE 26 )
(-----)
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(FIGURE: SOUND PRESSURE LEVEL {SPL})
 (11 EQUAL LEVEL CONTOURS (DB))
 (31.5 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 (OPERATION:)
 (MAX POWER, BOTH ENGINES)
 (FAN=84% RPM, CORE=95% RPM)
 (ITT=810 DEG C)
 (FREE FLOW)
 (A-10A AIRCRAFT)
 (TF34-GE-100 ENGINE)
 (GROUND RUNUP NOISE)
 (METEOROLOGY:)
 (TEMP = 15 C)
 (BAR PRESS = .760 M HG)
 (REL HUMID = 70 %)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST 75-002-058)
 (RUN 04)
 (07 JUL 75)
 (PAGE 18)



IDENTIFICATION: OMEGA 1.4

OMEGA 1.4

9) METEOROLOGY:

TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

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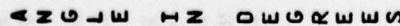


FIGURE: SOUND PRESSURE LEVEL (SPL)
 EQUAL LEVEL CONTOURS (DB)
 250 HZ OCTAVE BAND

11

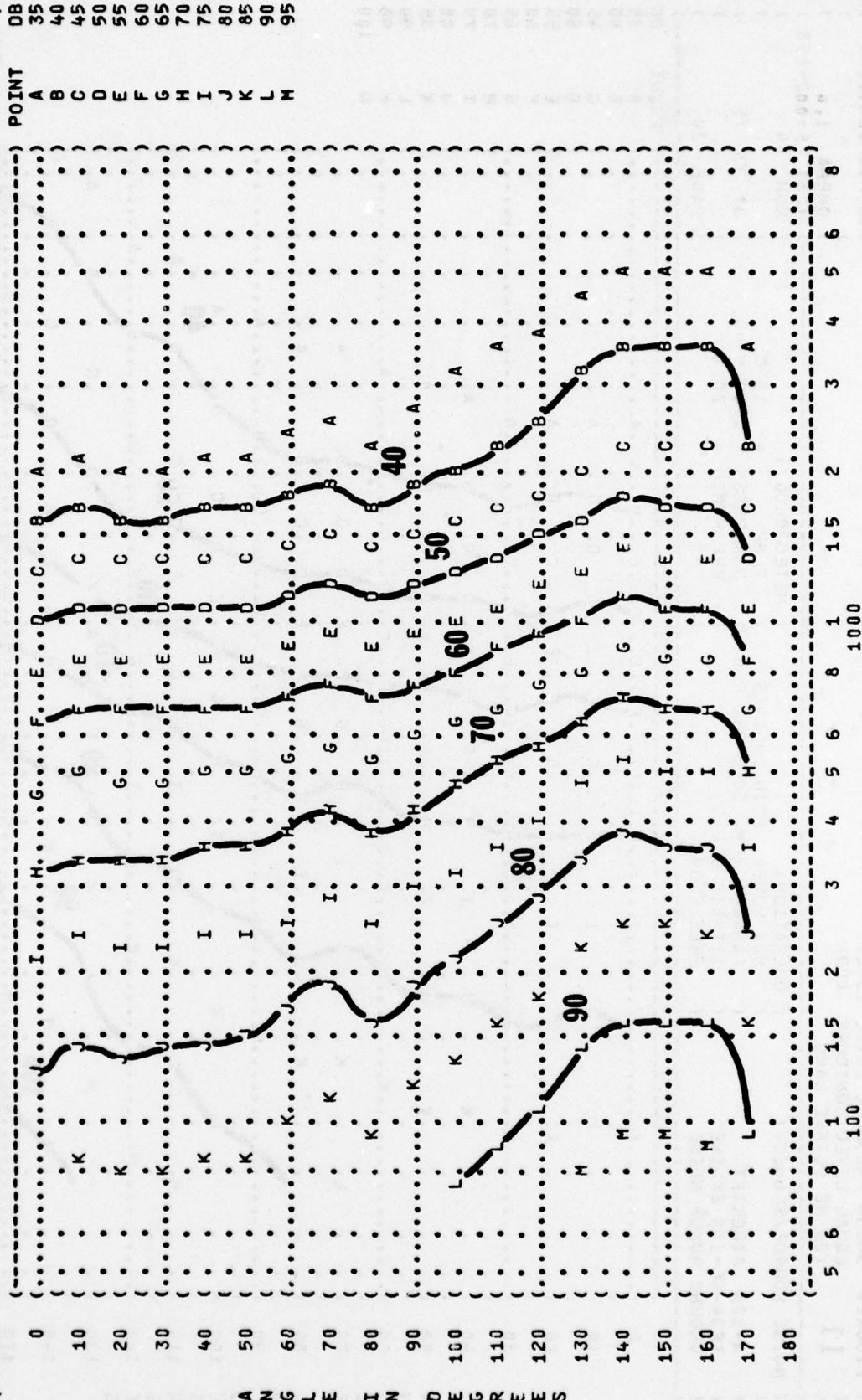
IDENTIFICATION:
 OMEGA 1.4
 TEST 75-002-058
 RUN 04

NOISE SOURCE/SUBJECT:
 A-10A AIRCRAFT
 TF34-GE-100 ENGINE
 GROUND RUNUP NOISE

OPERATION:
 MAX POWER, BOTH ENGINES
 FAN=84% RPM, CORE=95% RPM
 IIT=810 DEG C
 FREE FLOW

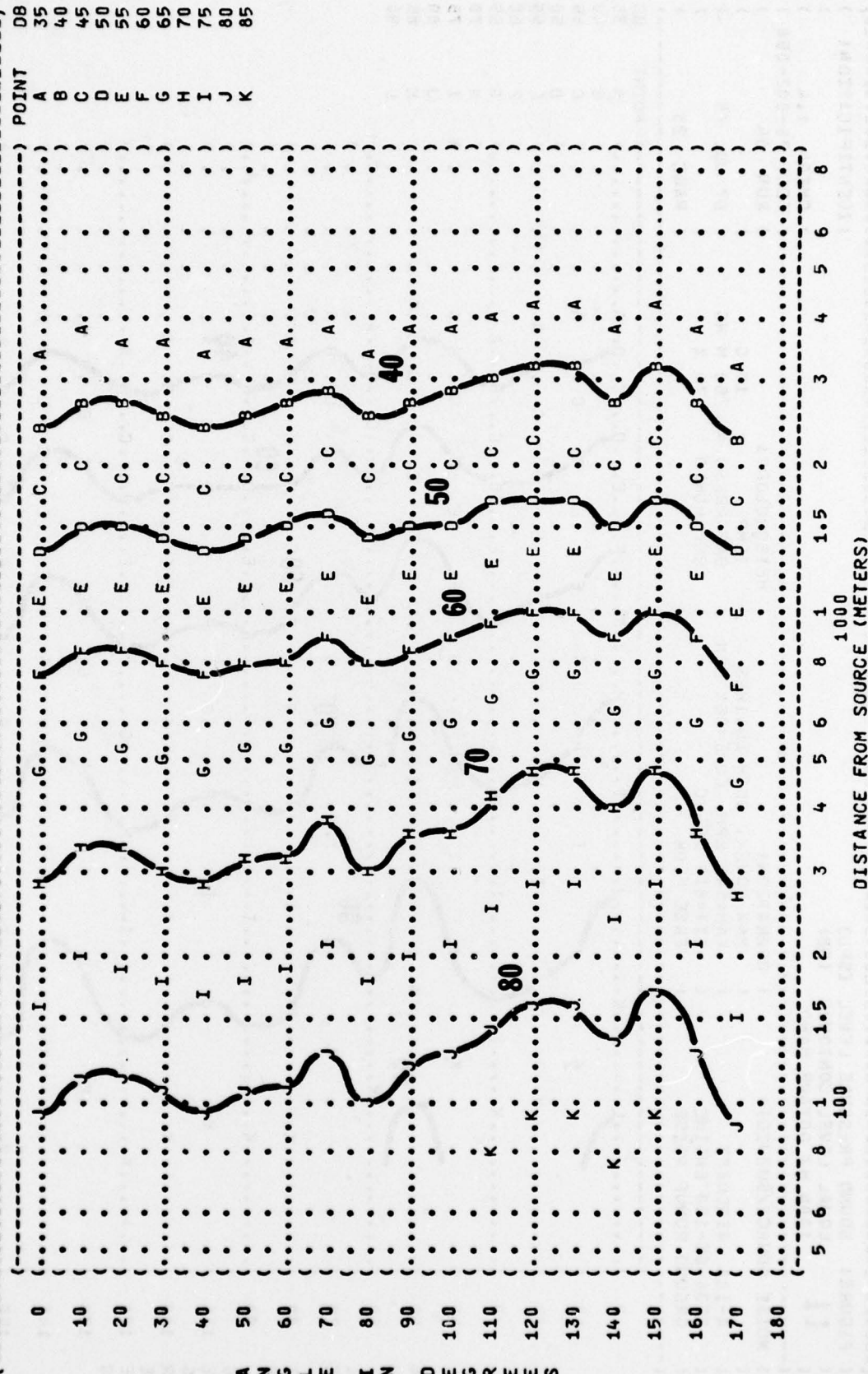
METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %

07 JUL 75
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A N G L E I N D E G R E E S

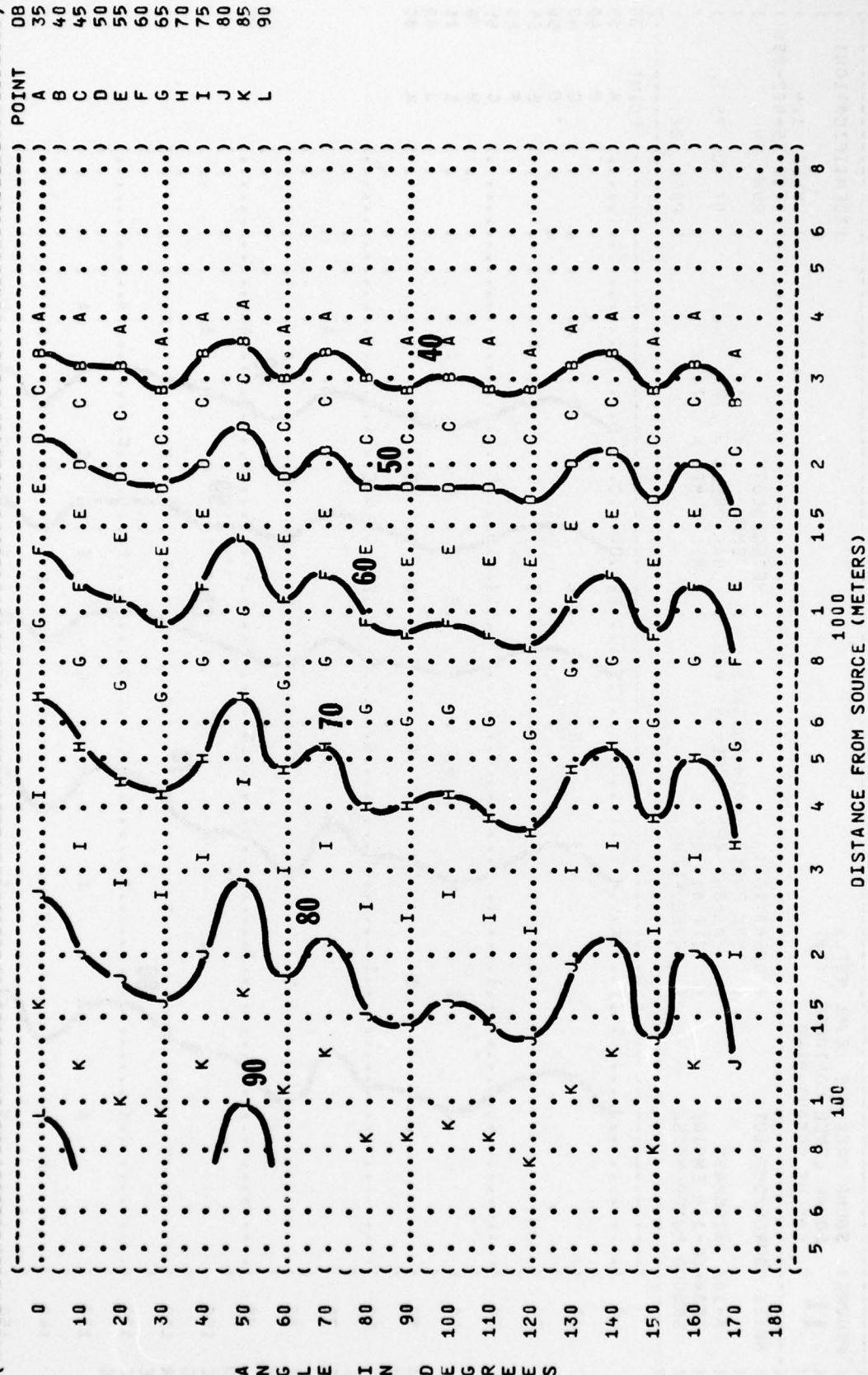
((FIGURE: SOUND PRESSURE LEVEL {SPL}	() IDENTIFICATION:
((EQUAL LEVEL CONTOURS (DB)	()
(	(	11	(	) OMEGA 1.4
(	(	500 HZ OCTAVE BAND	(	) TEST 75-002-058
(	(	NOISE SOURCE/SUBJECT:	(	) RUN 04
(	(	OPERATION:	(	) METEOROLOGY:
(	(	MAX POWER, BOTH ENGINES	(	) TEMP = 15 C
(	(	FAN=84% RPM, CORE=95% RPM	(	) BAR PRESS = .760 M HG
((ITT=810 DEG C	() REL HUMID = 70 %
((FREE FLOW	()
((A-10A AIRCRAFT	() PAGE 22
((TF34-GE-100 ENGINE	()
((GROUND RUNUP NOISE	()



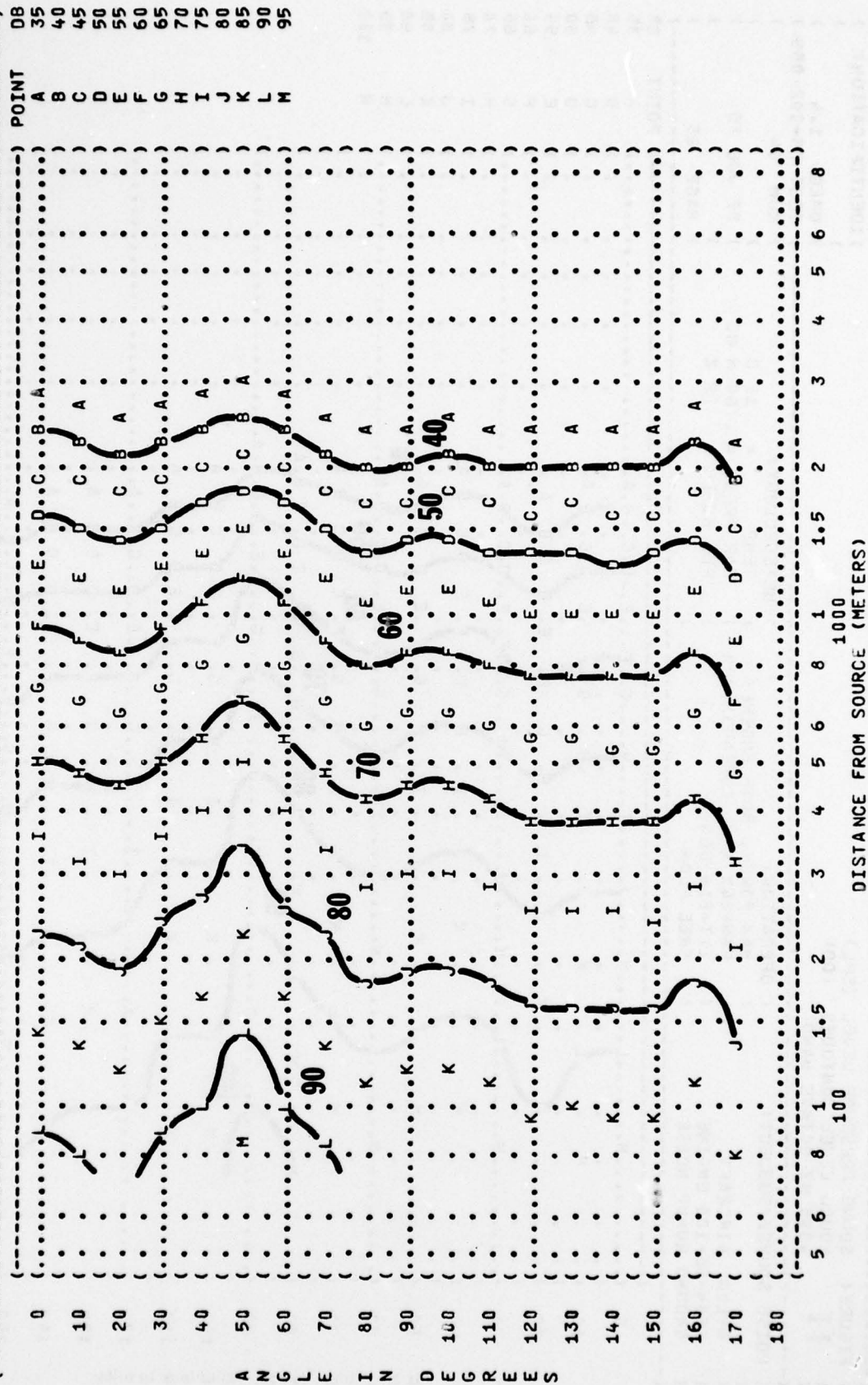

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(-----)
( FIGURE: SOUND PRESSURE LEVEL {SPL} )
( 11 EQUAL LEVEL CONTOURS (DB) )
( 1000 HZ OCTAVE BAND )
(-----)
( NOISE SOURCE/SUBJECT: )
( A-10A AIRCRAFT )
( TF34-GE-100 ENGINE )
( GROUND RUNUP NOISE )
(-----)
( OPERATION: )
( MAX POWER, BOTH ENGINES )
( FAN=84% RPM, CORE=95% RPM )
( ITT=810 DEG C )
( FREE FLOW )
(-----)
( METEOROLOGY: )
( TEMP = 15 C )
( BAR PRESS = .760 M HG )
( REL HUMID = 70 % )
(-----)
( IDENTIFICATION: )
( )
( OMEGA 1.4 )
( TEST 75-002-058 )
( RUN 04 )
( 07 JUL 75 )
( PAGE 23 )
(-----)

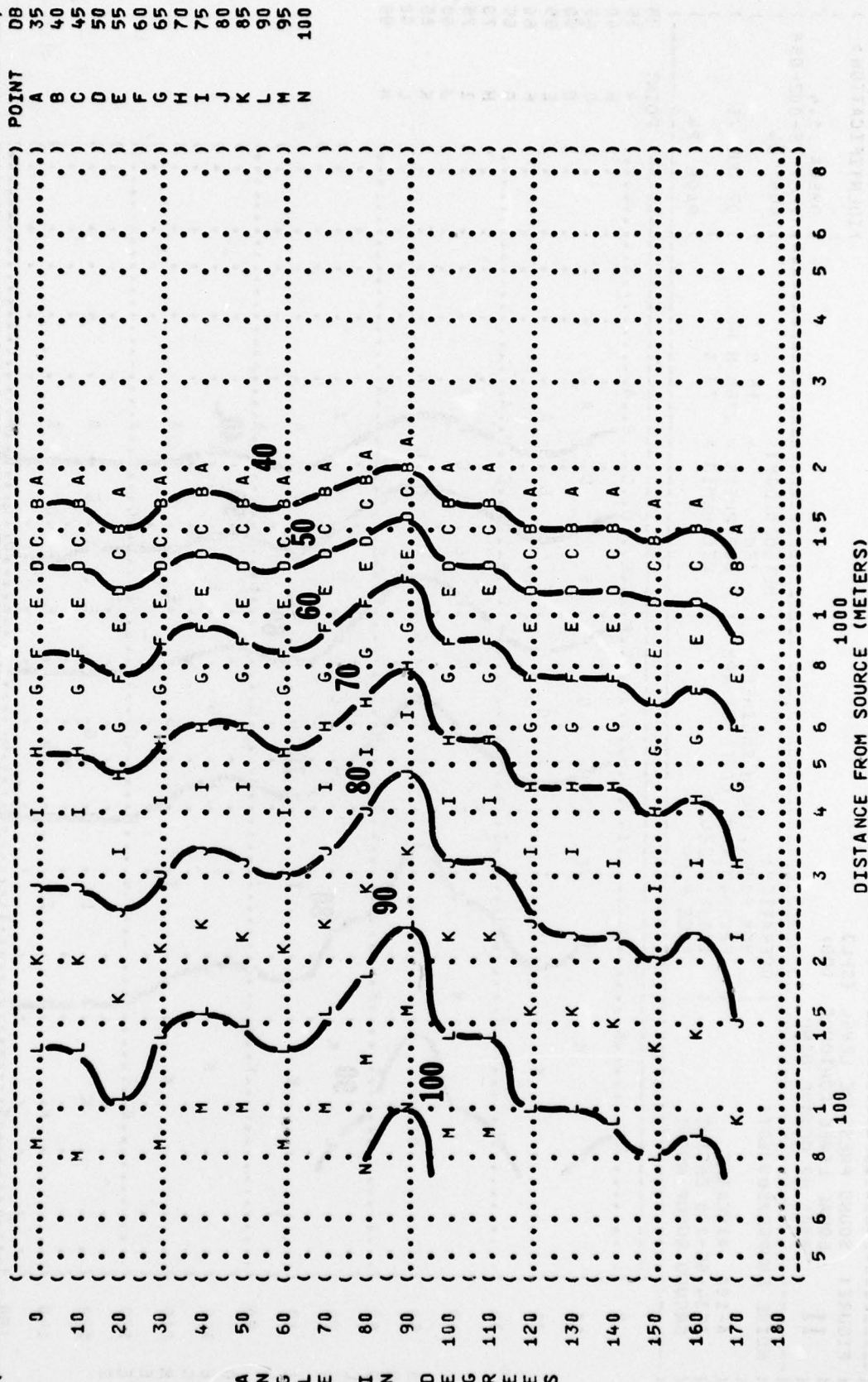
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(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (11 EQUAL LEVEL CONTOURS (DB)
 (2000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:
 ((MAX POWER, BOTH ENGINES) TEMP = 15 C
 ((FAN=84% RPM, CORE=95% RPM) BAR PRESS = .760 M HG
 ((ITT=810 DEG C) REL HUMID = 70 %
 ((FREE FLOW)
 (A-10A AIRCRAFT
 (TF34-GE-100 ENGINE
 (GROUND RUNUP NOISE
 (IDENTIFICATION:)
 ()
 () OMEGA 1.4
 () TEST 75-002-058
 () RUN 04
 () 07 JUL 75
 () PAGE 24



(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (11)
 (EQUAL LEVEL CONTOURS (DB))
 (4000 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 (OPERATION:)
 (MAX POWER, BOTH ENGINES)
 (FAN=84% RPM, CORE=95% RPM)
 (ITT=810 DEG C)
 (FREE FLOW)
 (A-10A AIRCRAFT)
 (TF34-GE-100 ENGINE)
 (GROUND RUNUP NOISE)
 (METEOROLOGY:)
 (TEMP = 15 C)
 (BAR PRESS = .760 M HG)
 (REL HUMID = 70 %)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST 75-002-058)
 (RUN 04)
 (07 JUL 75)
 (PAGE 25)



A N
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(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (11 EQUAL LEVEL CONTOURS (DB)
 (8000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT:
 (OPERATION:
 (MAX POWER, BOTH ENGINES
 (FAN=84% RPM, CORE=95% RPM
 (ITT=810 DEG C
 (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST 75-002-058
 (RUN 04
 (07 JUL 75
 (PAGE 26

